Controls

A Comprehensive Range of Control Options

CONTROLS

MITSUBISHI ELECTRIC
LIVING ENVIRONMENTAL SYSTEMS

Air Conditioning | Commercial Heating
Domestic Heating | Photovoltaics

The Importance of Control

The need for control is paramount in order to optimise the performance of any air conditioning system and minimise its running costs and the emissions generated. Mitsubishi Electric offer a wide range of control options designed to do just this.

Operating an air conditioning system without the right control can prove costly. It's therefore important to ensure that every system is correctly specified to the degree of control it requires. Mitsubishi Electric have a wide range of controls available 'off-the-shelf' and where needed, individual control systems can be specifically designed to suit.

Good controls will benefit any application, large or small. Air conditioning products need to react to a variety of factors: different room sizes, usage and staff levels, changes in the climate, electronic equipment and lighting etc.

The ability to monitor the energy consumption and operation of systems is also vital. It is often said that you cannot manage what you are not measuring. Our control systems will enable simple measuring and monitoring of energy consumption and running costs to ensure operation is maintained.

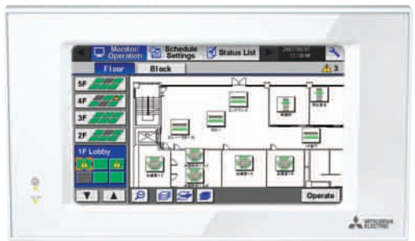
So whatever the application, optimum control of air conditioning systems is essential and will result in a constant, comfortable environment, which in turn is both energy and cost efficient.

A Degree of Difference

When an air conditioning system is not properly controlled, it will not run as efficiently as it should. For every degree that the system deviates from the required temperature, energy costs can rise by up to 5%. Specify one of the many control options from Mitsubishi Electric to ensure air conditioning works as intended, whilst giving the optimum amount of control.

The Simpler the Better

With the array of comprehensive control systems available from Mitsubishi Electric, it becomes simple to design and install air conditioning systems. From a simple hand held controller to an AG150 system - you are in control.



Controlled Performance

In accordance with the requirements of Part L2 in the Building Regulations, our control systems provide the optimum control available, combined with the most efficient use of energy.

Which Controls Product for Which Application?

It is really important to match the right control with the right application. From a hotel to a retail application, the solution will be different and the right control must be applied.

Application	Small	Medium	Large	Notes
Hotel	AG150	MELCOTEL™	MELCOTEL™	A hotel usually requires interfacing with a key card system and window contact. The Melcotel™ has been designed to do just this for up to 250 City Multi indoor units. The Melcotel™ can also work without a key card system
Office	PAR-30MAA PAR-F27MEA	AG150	TG2000	In an office application there is usually someone managing the air conditioning, so the interface needs to be simple to use. The user friendly AG150 touch screen is one option, as well as the TG2000 PC graphical user interface
Retail	IO Interface	Mini M2M	Maxi M2M	Retail shops are usually managed by head offices or facility management companies, so it is key to have remote monitoring of the air conditioning, but also any building services which can also be connected to the M2M interfaces
Leisure	PAR-30MAA PAR-F27MEA Mini M2M	AG150 Maxi M2M	AG150 TG2000	In small applications the M2M platform can be a solution, as well as the AG150 touch screen or the TG2000 software package for larger applications
Education	PAR-30MAA PAR-F27MEA Mini M2M	AG150 Maxi M2M	AG150 TG2000	In small applications the M2M platform can be a solution, as well as the AG150 touch screen or the TG2000 software package for larger applications

Which Controls Product for Which Function?

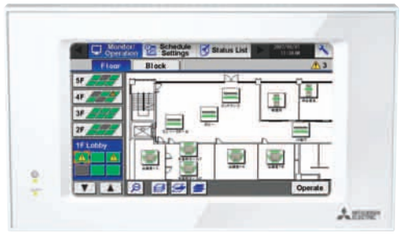
Application	Low Cost and Features				High	Notes
	Option 1	Option 2	Option 3	Option 4	Option 5	
Remote On/Off or fire alarm	PAC-SA89TA	TCB1	IO Interface	AT50	AG150 and PAC-YG10HA	On/Off remote controller button lock except TCB1
Monitor run and faults	PAC-SA88HA	IO Interface	AT50	AG150 and PAC-YG10HA	-	Relays or power supply may be required
Window interlocking	PAC-SA89TA	TCB1	-	-	-	Controller will be centrally controlled when window opened
Setpoint limit	PAR-30MAA	PAR-F27MEA	AT50	AG150	AG150 and TG2000	Available in Heat, Cool and Auto modes
Weekly timer	PAR-30MAA	AT50	AG150	AG150 and TG2000	M2M	Setpoint, On/Off can be reset
Night set back	TCB1	AT50	AG150	AG150 and TG2000	M2M	TCB1 requires thermostat, timeswitch, 12v power supply
Energy monitoring	AG150 and PAC-CN32WHMC-UK	AG150 and PAC-YG60MCA	TG2000, AG150 and PAC-YG60MCA	Mini M2M	Maxi M2M	Different options for each choice. Meters required
Load shedding	AG150 and PAC-YG60MCA	Mini M2M	Maxi M2M	-	-	Energy meters required
Trend logging	AG150 and TG2000	Mini M2M	Maxi M2M	-	-	CSV data available on a spreadsheet
Night mode	PAC-SA89TA	AG150	-	-	-	PAC-SA89TA requires a third party timer
Ambient tracking	AG150 and PAC-YG63MCA	Mini M2M	Maxi M2M	-	-	PT100 sensor required
Key card interlock for hotel	AG150, AG150-Interlock and PAC-SA89TA	MELCOTEL™ and PAC-SA89TA	-	-	-	Volt free contact for key card normally open
Window sensor interlock for hotel	MELCOTEL™ and PAC-SA89TA	-	-	-	-	Volt free contact for key card normally closed
2 setpoints (1 for cool and 1 for heat)	IO Interface	Mini M2M	Maxi M2M	-	-	For instance, 19°C Heat and 23°C Cool. Fan only in between
Duty / Standby	PAR-30MAA	PANEL_RS_SMS	-	-	-	Backup, rotate, join in and high temperature function
A/C faults via SMS	Micro M2M	-	-	-	-	SIM card not supplied
Optimised start	AG150	-	-	-	-	-
Mini BEMS	Mini M2M	Maxi M2M	-	-	-	-

NOTE: The PAC-SA89TA is also known as a 3 wire adaptor and the PAC-SA88HA is also known as a 5 wire adaptor
DISCLAIMER: These options are for guidance only

A Wide Range of Control Options

The need for **control** is paramount in order to optimise the performance of any air conditioning system and minimise its running costs. Mitsubishi Electric offer a wide range of control options designed to do just this.

With the array of comprehensive **control** systems available from Mitsubishi Electric, it becomes simple to design and install air conditioning systems. From a simple hand held controller to an AG150 system - you are in **control**.



CONTROLS Contents

272 **Remote Controllers**

273 **AT50 Controller**, Centralised Controller

274 **Interfaces**

275 **IO Interface**

276 **AG150 Controller**, Centralised Controller

277 **AT50/AG150 Controller**, Touch Screen Examples

278 **AG150 Expansion Controller** (PAC-YG50ECA)

279 **GB50ADA Controller**, Centralised Controller

280 **AG150/GB50 Controller**, Web Screenshots

281 **PAR-21PC Desktop Remote Controller**

282 **AG150/GB50 Third Party Equipment Interfaces**

283 **AG150/GB50 Melcotel™ Hotel Interface**, with key card system

284 **AG150/GB50 Melcotel™ Hotel Interface**, without key card system

285 **AG150/GB50 Melcotel™ Hotel Interface**, with M2M

286 **TG2000 Software**, PC Based Software Package

287 **TG2000 Software** with Energy Monitoring

288 **Energy Monitoring**

289 **TG2000 Software** with Third Party Equipment

290 **TG2000 WAN Software** (Wide Area Network)

291 **TG2000**, Screenshots

292 **BEMS BACnet®** Interface (BAC-IP/50)

293 **BEMS BACnet®** Interface (BAC-HD150)

294 **BEMS BACnet®** Mr Slim Interface (BAC-A/50)

295 **BEMS LonWorks®** Interface (LMAP)

296 **BEMS Modbus** Interface (MOD-IP/50)

297 **BEMS Modbus** Mr Slim Interface (A32M)

298 **BEMS Modbus** Splits Interface (A1M)

299 **BEMS KNX-EIB** Interfaces (KNX-EIB-IP-15/100)

300 **BEMS KNX-EIB** Splits Interface (KNX-EIB-A-1)

301 **BEMS Trend** Interface (Trend IQ3 Excite)

302 **M2M - Machine 2 Machine** Interface (Maxi M2M-IP/50)

303 **M2M - Machine 2 Machine** Splits Interface (Mini M2M-A/16)

304 **M2M - Machine 2 Machine** Splits Interface (Micro M2M-SMS-A/08)

305 **M2M - Machine 2 Machine** Web Screenshots

306 **Run Standby Panel** (PANEL_RS_SMS)

307 **Split-System A2M** Interfaces

Remote Controllers

Our air conditioning systems are supported by a multitude of remote controllers. Each remote controller type, whilst being able to support the general control and monitoring functions for a group of indoor units, can also offer other unique operational features.

PAC-YT51CRB

PAC-SE51CRA

BS-51COV-B

PS-51COV-B

PB-51COV-B

PAR-30MAA

PAR-F27MEA

PAR-FL32MA

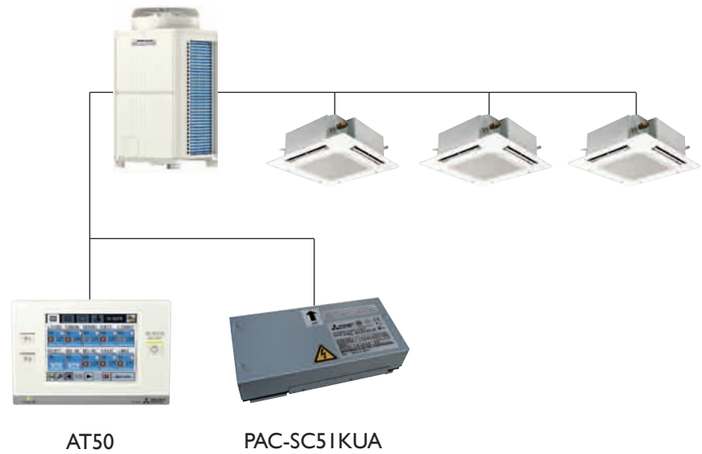
Technical Information

Remote Controllers

FUNCTION	DESCRIPTION	PAC-YT51CRB		PAC-SE51CRA		PAR-30MAA		PAR-F27MEA		PAR-FL32MA	
		Operation	Display	Operation	Display	Operation	Display	Operation	Display	Operation	Display
ON/OFF	Run and Stop operation for a single group	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
MODE SELECTION	Switches between Cool/Dry/Auto/Fan/Heat. Operation mode will vary depending on the indoor unit. Auto mode is available with only R2 and WR2 systems		✔		✔	✔	✔	✔	✔	✔	✔
TEMPERATURE SETTING	Sets the groups temperature control. Cool/Dry: 19-30°C Heat: 17-28°C Auto: 19-28°C	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
FAN SPEED SETTING	4 speed - Lo-Mi1-Mi2-Hi 2 speed - Lo-Hi	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
SETPOINT LIMIT	Limit the setpoint range				✔	✔	✔	✔	✔		
AIRFLOW DIRECTION	Air Flow angles:100°-80°-60°-40° and auto swing					✔	✔	✔	✔	✔	✔
INDEPENDENT VANE CONTROL	Only available with PLA-RP-BA, PLFY-P-VBM-E and PLFY-P-VCM-E					✔	✔				
TIMER OPERATION	ON/OFF time can be set.					Weekly	Weekly	Daily	Daily	Daily	Daily
PERMIT / PROHIBIT FUNCTION	Run/Stop, Temperature Setting, Mode Selection and Filter Reset functions can be prohibited via a higher level system controller		✔		✔		✔		✔		✔
INDOOR RETURN AIR TEMPERATURE	Measures the intake temperature of the master unit within the group						✔		✔		
ERROR INDICATION	Displays a 4 digit code and the affected unit address		✔		✔		✔		✔		
TEST RUN FUNCTION	Allows each unit within the group to operate in test mode		✔		✔	✔	✔	✔	✔	✔	✔
VENTILATION INTERLOCK	Allows the group to be interlocked with a heat recovery Lossnay unit					✔	✔	✔	✔		
OPTIONAL COVER	Brushed Stainless Steel Polished Stainless Steel Polished Brass		✔ ✔ ✔		✔ ✔ ✔						
CONTACT NUMBER UNDER FAULT CONDITIONS	Displays under fault condition, the fault code of the unit with its address and the contact number to call						✔				
EASY MAINTENANCE WITH MR SLIM	Able to monitor info about the compressor (running current, running time, On/Off time). Also able to monitor sensors: h-exh, OU outlet, OU temp, IU inlet, IU h-exh and filter usage					✔	✔				
BACKLIGHT DISPLAY	Backlight display. Displays current time						✔				
BUTTON LOCK	Able to lock all controller buttons, or all controller buttons except On/Off					✔	✔	✔	✔		
ENERGY SAVING	Reset the unit setpoint after a period of time					✔					
SILENT MODE	Activate with scheduling the silent mode on the outdoor unit					✔					
NIGHT SET BACK	Maintain a min and max temperature					✔					
RUN / STANDBY WITH MR SLIM	Able to switch over two systems every week. If one fails, the other system starts. If the temperature is too high, the two systems start.					✔	✔				
COMPATIBILITY	Compatible with:	Mr Slim or M Series (via MAC-397IF)		City Multi, Mr Slim (via PAC-SF81MA) or M Series (via MAC-399IF)		City Multi, Mr Slim or M Series (via MAC-397IF)		City Multi, Mr Slim (via PAC-SF81MA) or M Series (via MAC-399IF)		City Multi (via PAR-FA32MA) or Mr Slim (via PAR-FA32MA)	
DIMENSIONS - mm (WxDxH)		120x41x70		120x41x70		120x19x120		130x19x120		157x18x57	

AT50 Controller

The new AT50 centralised controller is a low cost version of the very popular AG150 touch screen controller. The AT50 offers the main AG150 functionality, with a very simple and easy to use 5 inch touch screen.


AT50

PAC-SC51KUA

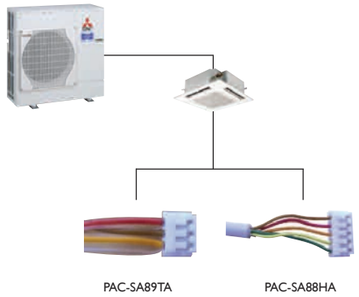
Technical Information

AT50 Controller

FUNCTION	DESCRIPTION
TOUCH SCREEN	5" QVGA touch screen
MAX No. OF INDOOR UNITS	Up to 50 indoor units can be connected
ON/OFF	Run and Stop operation for a single group
MODE SELECTION	Switches between Cool/Dry/Auto/Fan/Heat. Operation Mode will vary depending on the indoor unit. Auto mode is available with only R2 and WR2 systems
TEMPERATURE SETTING	Sets the groups temperature control. Cool/Dry: 19-30°C, Heat:17-28°C, Auto: 19-28°C
TIMER OPERATION	Annual or weekly. Night set back option available allowing the setpoint to be set to 12°C
AIR FLOW DIRECTION	Air Flow angles:100°-80°-60°-40° and auto swing
FAN SPEED SETTING	4 speed: Lo-Mi1-Mi2-Hi, 2 speed: Lo-Hi
PERMIT/PROHIBIT FUNCTION	Individual prohibit operations for each remote controller function (Run/Stop,Temperature Setting, Mode Selection and Filter Reset) can be activated
INDOOR RETURN AIR TEMPERATURE	Displays the measured intake temperature from each group
ERROR INDICATION	Displays a 4 digit code and the affected unit address. An error log is held
TEST RUN FUNCTION	Allows each unit within the group to operate in test mode
VENTILATION INTERLOCK	Allows the group to be interlocked with a heat recovery Lossnay unit
FIRE ALARM	Units will be switched off and the remote controller will be locked under fire alarm condition
NIGHT SET BACK	During unoccupied hours the system works in a reduced state. For instance, an unoccupied room in heating mode will keep the temperature of the room between 16 and 19°C. In cooling the temperature will range between 24 and 26°C
POWER SUPPLY	Power supply 240VAC 0.5A (PAC-SC51KUA required)
COMPATIBILITY	City Multi or Mr Slim via PAC-SF81MA or M Series via MAC-399IF
DIMENSIONS - mm (WxDxH)	180x30x120

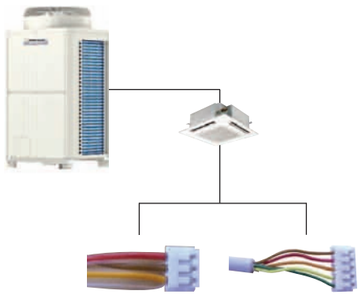
Interfaces

A range of newly created interfaces are now available for use when connecting to third party controllers.



PAC-SA89TA PAC-SA88HA

TCB1



PAC-SA89TA PAC-SA88HA

TCB1

Technical Information

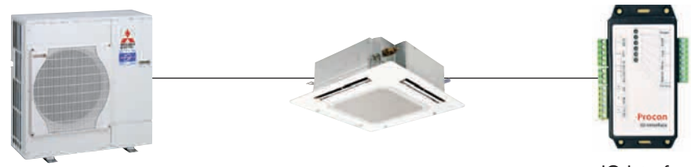
Interfaces

FUNCTION	DESCRIPTION	PAC-SA89TA		PAC-SA88HA		TCB1	
		Control	Monitor	Control	Monitor	Control	Monitor
ON/OFF BUT CENTRALLY CONTROLLED	ON/OFF control. Remote controller ON/OFF button deactivated	✔ (VFC)					
ON/OFF BUT NOT CENTRALLY CONTROLLED	ON/OFF control. Remote controller ON/OFF button activated					✔ (12VDC)	
TEMPERATURE SETTINGS	Sets the groups temperature control. Cool/Dry: 19-30°C Heat: 17-28°C Auto: 19-28°C						
RUN INDICATION					✔ (12VDC)		
ERROR INDICATION					✔ (12VDC)		
COMPATIBILITY	Interface compatible with:		Mr Slim City Multi		Mr Slim City Multi		Mr Slim City Multi
DIMENSIONS - mm (WxDxH)							80x45x80

NOTE: VFC: Volt free contact.
PAC-SA89TA is also known as a 3 wire adaptor.
PAC-SA88HA is also known as a 5 wire adaptor.

IO Interface

The new IO interface has been developed to allow third party systems, for instance BEMS companies, to easily control and monitor our air conditioning systems using simple volt free contacts and 0 to 10VDC signals. By working very closely with our main retail clients we have added some beneficial energy saving features, whilst still offering an acceptable level of control for retail applications. To avoid wasting energy the IO interface can also be used to interlock third party heating systems to our air conditioning.



IO Interface

Technical Information

IO Interface

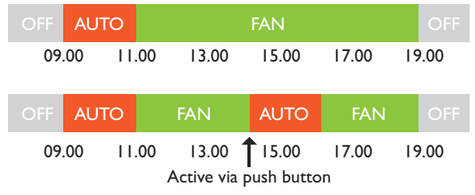
FUNCTION	DESCRIPTION	INPUTS / OUTPUTS	IO INTERFACE
UNIT	Max No. of indoor units	-	1 or 16*1
ON/OFF	Run and Stop operation for a single group	Input	Volt Free Contact
LOCK	Run/Stop, Temperature Setting, Mode Selection and Filter Reset functions can be prohibited	Input	Volt Free Contact
ENERGY SAVE	Energy Save can be activated. 2 options are available	Input	Volt Free Contact
TEMPERATURE SETTING	Sets the groups temperature control	Input	0 to 10VDC
MODE	Switches between Cool/Dry/Auto/Fan/Heat. Operation mode will vary depending on the indoor unit. Auto mode is available with only R2 and WR2 systems	Input	0 to 10VDC
FAN SPEED	4 speed - Lo-Mi1-Mi2-Hi 2 speed - Lo-Hi	Input	0 to 10VDC
RUN STATUS	-	Output	Volt Free Contact
FAULT	-	Output	Volt Free Contact
HEAT / COOL	Activates when unit is in heating or cooling mode	Output	Volt Free Contact
THERMO	Activates when room temperature is 2°C away from setpoint	Output	Volt Free Contact
COMPATIBILITY	Mr Slim and M Series	-	-
DIMENSIONS - mm (WxDxH)	85x32x138	-	-

Energy Saving Features

MODE 1

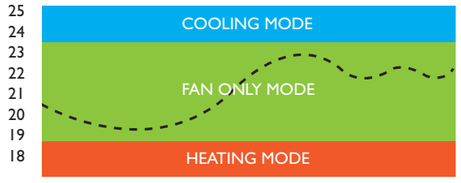
The energy saving mode 1 sets the indoor unit to Auto mode whenever a momentary signal is applied to the 'Energy Save' input or whenever the on/off state is changed from OFF to ON. The unit will operate in AUTO for 0.5, 1 or 2hours and then revert back to fan only.

The timer can be reset using the Energy Save input.



MODE 2

The energy saving mode 2 sets two setpoints for the indoor unit, one for heating and one for cooling. In between the indoor unit will be running in fan only mode.



*1 The IO Interface can control up to 16 indoor units when the fault output is not used. When the fault output is used only one indoor unit can be controlled.

AG150 Controller

Touch Screen Centralised Controller with WebServer Capabilities

The AG150 Mitsubishi Electric centralised controller offers a large 9 inch touch screen display with easy control of up to 50 indoor units. The AG150 can calculate the energy used for each system. The refrigerant status check function can be activated regularly (in conjuction with the new YJM-A City Multi range) and an Internet connection with SSL security is also available to monitor and control the AG150 remotely and receive Email under fault conditions.

Viewed using Microsoft® Internet Explorer

Technical Information

AG150 Controller

FUNCTION	DESCRIPTION
TOUCH SCREEN	Wide high resolution 9" touch screen
OPERATION PLATFORM	CPU 1000 Mhz, 512 MB RAM, 6GB or more. Internal LAN 10/100 MBps running Windows Professional 2000 service pack 4 or Windows Professional XP service pack 2 or Windows Vista or Windows 7
MAX No. OF INDOOR UNITS	Up to 50 indoor units can be connected or 150 using an expansion controller (PAC-YG50ECA)
ON/OFF	Run and Stop operation for a single group
MODE SELECTION	Switches between Cool/Dry/Auto/Fan/Heat. Operation Mode will vary depending on the indoor unit. Auto mode is available with only R2 and WR2 systems
TEMPERATURE SETTING	Sets the groups temperature control. Cool/Dry: 19-30°C, Heat:17-28°C, Auto: 19-28°C
TIMER OPERATION	Annual or weekly. Night set back available allowing the setpoint to be set to 12°C
AIR FLOW DIRECTION	Air Flow angles:100°-80°-60°-40° and auto swing
FAN SPEED SETTING	4 speed: Lo-Mi1-Mi2-Hi, 2 speed: Lo-Hi
PERMIT/PROHIBIT FUNCTION	Individual prohibit operations for each remote controller function (Run/Stop,Temperature Setting, Mode Selection and Filter Reset) can be activated
INDOOR RETURN AIR TEMPERATURE	Displays the measured intake temperature from each group
ERROR INDICATION	Displays a 4 digit code and the affected unit address including the description of the error. An error log is held
TEST RUN FUNCTION	Allows each unit within the group to operate in test mode
VENTILATION INTERLOCK	Allows the group to be interlocked with a heat recovery Lossnay unit
OPTIMISED START	The equipment is started only as early as required to bring the building to a setpoint at the time it will be occupied. Running in an optimal state helps reduce energy usage.
AUTOMATIC SETPOINT ADJUSTMENT	The AG150 will change the setpoint depending of the outdoor temperature. PAC-YG63MCA and a PT100 sensor are required (PT100 sensor not supplied by MEUK). This function is only available in COOL mode
AUTO LOCK	The AG150 screen can be password protected. When the screen goes to standby and when the AG150 restarts, a username and password will be required
NIGHT SET BACK	During unoccupied hours the system works in a reduced state. For instance, an unoccupied room in heating mode will keep the temperature of the room between 16 and 19°C. In cooling the temperature will range between 24 and 26°C
AutoCAD DRAWING	A floor plan of the building in auto-cad format can be uploaded. For the facilities department it makes viewing and adjusting settings easier
WEB LOGIN	Administrator able to allow specific function access to guest
WEB SETPOINT LIMIT	Reduce the setpoint band of each individual unit (e.g. 23°C to 25°C)
WEB AUTO CHANGEOVER	Automatically switch heat pump outdoor unit to cooling or heating mode depending on the requirements
WEB INITIAL SETTING	Commission the AG150 from the web pages
WEB REFRIGERANT STATUS CHECK	Activate refrigerant volume checking function on Modular City Multi systems
WEB-INTERLOCK	The AG150 can interlock indoor unit input and output together. For instance, this function could be used for Hotel applications, if card in, set unit to ON, AUTO 21°C and if card out, set the unit to night set back. This function could also be set in conjunction with PIR sensor in meeting rooms
WEB-LOAD SHEDDING	Activate energy saving mode when energy consumption is too high
EXTERNAL INPUT/OUTPUT	Hardwired connections are available for : Inputs: Level Signal-Batch Start/Stop, Batch Emergency Stop; Outputs: Start/Stop Status, Error/Normal Status
FIRE ALARM	Units will be switched off and the remote controller will be locked under fire alarm condition via a PAC-YG10HA
POWER SUPPLY	Power supply 240VAC 0.5A (PAC-SC51KUA required)
COMPATIBILITY	City Multi or Mr Slim via PAC-SF81MA or M Series via MAC-399IF
DIMENSIONS - mm (WxDxH)	300x62x175

AG150 Software Options - Pin Code Activation

AG150 - Basic	Web monitoring, Email, Annual scheduling	AG150 - VRC	Virtual remote controllers
AG150 - Energy	Energy monitoring, energy saving, load shedding	AG150 - Interlock	Interlocking function

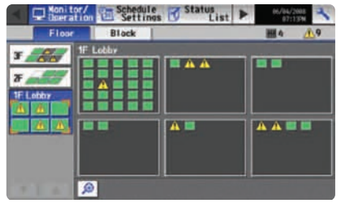
DEMONSTRATION

Visit wwwL1.mitsubishielectric.co.jp/wink_doc/wink_files/acr/menu/ag150

AT50/AG150 Controller Touch Screen Examples

AT50 Home Screen 1

AG150 Home Screen 1



AT50 Home Screen 2

AG150 Home Screen 2

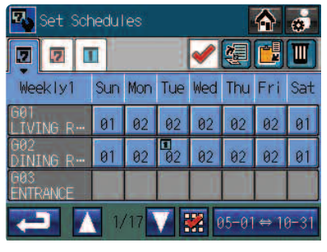
AT50 Home Screen 3

AG150 Home Screen 3

AT50 Indoor Unit Settings

AG150 Indoor Unit Settings

AT50 Scheduling

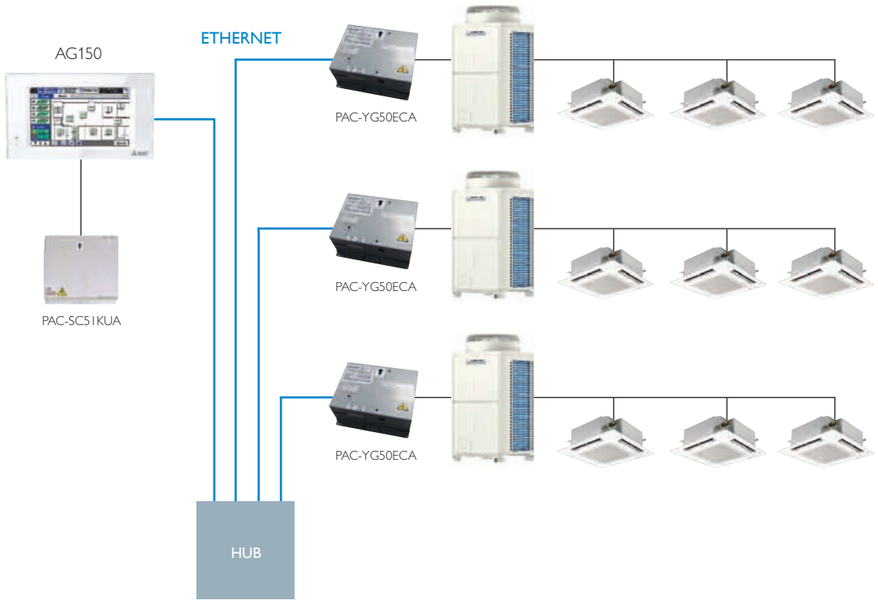


AG150 Scheduling

PAC-YG50ECA

AG150 Expansion Controller

The PAC-YG50ECA expansion controller allows the AG150 to monitor and control up to 150 indoors units.



Technical Information

PAC-YG50ECA

NUMBER OF INDOOR UNITS	NUMBER OF AG150 REQUIRED	NUMBER OF PAC-YG50ECA REQUIRED
0 to 50	1	0
51 to 100	1	2
101 to 150	1	3

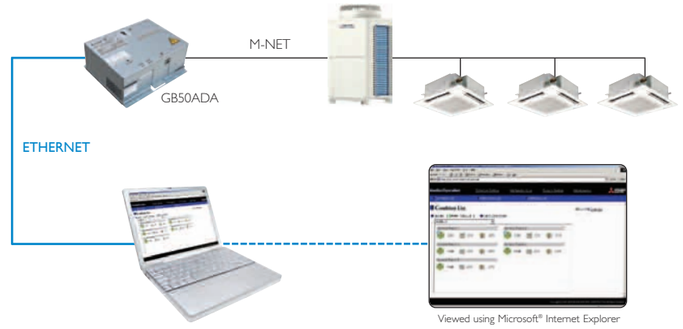
PAC-YG50ECA

FUNCTION	DESCRIPTION
AG150 / PAC-YG50ECA CONNECTION	Ethernet. Ethernet hub and network cables required and not supplied by MEUK
POWER SUPPLY	240VAC 3.2A
DIMENSIONS - mm (WxDxH)	250x97x266

GB50ADA Controller

Centralised Controller with WebServer Capabilities

The GB50 has been developed to access all your control functions from the comfort of your own PC, without the need for a controller keypad or LCD display and at a very competitive price.



Technical Information

GB50ADA Controller

FUNCTION	DESCRIPTION
OPERATION PLATFORM	CPU 1000 Mhz, 512MB RAM, 6GB or more. Internal LAN 10/100 MBps running Windows Professional 2000 service pack 4 or Windows Professional XP service pack 2 or Windows Vista or Windows 7
MAX No. OF INDOOR UNITS	Up to 50 indoor units can be connected
ON/OFF	Run and Stop operation for a single group
MODE SELECTION	Switches between Cool/Dry/Auto/Fan/Heat. Operation Mode will vary depending on the indoor unit. Auto mode is available with only R2 and WR2 systems
TEMPERATURE SETTING	Sets the groups temperature control. Cool/Dry: 19-30°C, Heat:17-28°C, Auto: 19-28°C
FAN SPEED SETTING	4 speed: Lo-Mi1-Mi2-Hi, 2 speed: Lo-Hi
AIR FLOW DIRECTION	Air Flow angles:100°-80°-60°-40° and auto swing
TIMER OPERATION	Annual or weekly. Night set back option available allowing the setpoint to be set down to 12°C
PERMIT/PROHIBIT FUNCTION	Individual prohibit operations for each remote controller function (Run/Stop,Temperature Setting, Mode Selection and Filter Reset) can be activated
INDOOR RETURN AIR TEMPERATURE	Displays the measured intake temperature from each group
ERROR INDICATION	Displays a 4 digit code and the affected unit address. An error log is held showing the last 64 date stamped alarms
TEST RUN FUNCTION	Allows each unit within the group to operate in test mode
VENTILATION INTERLOCK	Allows the group to be interlocked with a heat recovery Lossnay unit
WEB LOGIN	Administrator able to allow specific function access to guest
WEB SETPOINT LIMIT	Reduce the setpoint band of each individual unit (e.g. 23°C to 25°C)
WEB AUTO CHANGEOVER	Automatically switch heat pump outdoor unit to cooling or heating mode depending on the requirements
WEB INITIAL SETTING	Commission the GB50 from the web pages
WEB REFRIGERANT STATUS CHECK	Activate refrigerant volume checking function on Modular City Multi systems
WEB-INTERLOCK	The GB50 can interlock indoor unit input and output together. For instance, this function could be used for Hotel applications, if card in, set unit to ON, AUTO 21°C and if card out, set the unit to night set back. This function could also be set in conjunction with PIR sensor in meeting rooms
WEB-LOAD SHEDDING	Activate energy saving mode when energy consumption is too high
EXTERNAL INPUT/OUTPUT	Hardwired connections are available for : Inputs: Level Signal-Batch Start/Stop, Batch Emergency Stop Outputs: Start/Stop Status, Error/Normal Status
FIRE ALARM	Units will be switched off and the remote controller will be locked under fire alarm condition via a PAC-YG10HA
POWER SUPPLY	Power supply 240VAC 3.2A
COMPATIBILITY	City Multi or Mr Slim via PAC-SF81MA or M Series via MAC-399IF
DIMENSIONS - mm (WxDxH)	250x97x266

GB50 Software Options - Pin Code Activation

G50 - EC	Energy Charge
G50 - ES	Energy Saving Capability
G50 - PC	Peak Cut Control
G50 - VRC	Virtual Remote Controllers

AG150/GB50 Controller Web Screenshots

Login

Access to the web pages is secured using a customised username and password.

Monitor Air Conditioning - Overview

The first screen allows you to monitor all the units connected to the AG150/GB50. Each icon displays On/Off, Faults and timer On/Off.

Monitor Air Conditioning - Block view

Each area of the building can be displayed with information about On/Off, Setpoint, Mode and Temperature.

Remote Controller Settings

Click on any icons in the Monitor View page to access the remote controller. Lossnay units can also be controlled. Buttons on the local controllers may be locked (On/Off, Mode, Setpoint, Filter Reset).

Daily, Weekly and Annual Scheduling (AS PIN code)

Scheduling may be set from the web pages.
A night set back operation is available (Heat, 12°C).
Standard on the AG150/GB50.

Monitor Fault Codes

Faults with the unit address can be displayed under fault conditions. Email status can also be shown.

Multiple Users (VRC PIN code)

If the AG150/GB50 is connected to an office LAN, the staff will then be able to access the web pages. With VRC each member of staff will have their own username and password.

Multiple Users (VRC PIN code)

Installation costs will be reduced as no wall remote controllers will need to be purchased and installed.

Icons available to suit model type installed

PAR-21PC Desktop Remote Controller

More and more customers are using the AG150/GB50 controllers directly from their computers, so Mitsubishi Electric has launched a new, even simpler alternative which presents the customer with what looks like a standard remote controller interface - on their PC desktop. Called the PAR-21PC, the new application can also be minimised in the Desktop Toolbar, just like other Windows applications, so that the customer can have immediate control with just one click of the mouse.

Technical Information

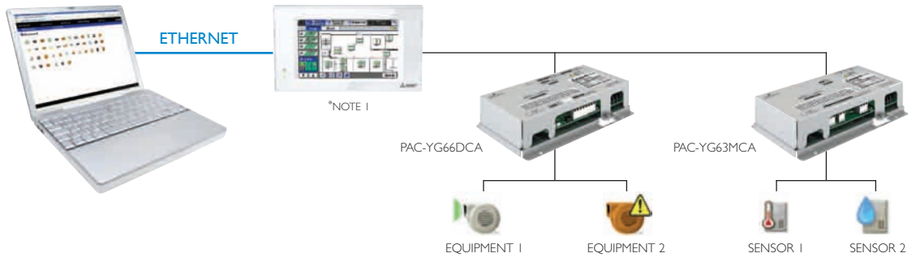
PAR-21PC Desktop Remote Controller

FUNCTION	DESCRIPTION
OPERATION PLATFORM	CPU 1000 Mhz, 512 MB RAM, 6GB or more. Internal LAN 10/100 MBps running Windows Professional 2000 service pack 4 or Windows Professional XP service pack 2
MAX No. OF INDOOR UNITS	Up to 16 indoor units within a group
ON/OFF	Run and Stop operation for a single group
MODE SELECTION	Switches between Cool/Dry/Auto/Fan/Heat. Operation Mode will vary depending on the indoor unit. Auto mode is available with only R2 and WR2 systems
TEMPERATURE SETTING	Sets the groups temperature control. Cool/Dry: 19-30°C, Heat:17-28°C, Auto: 19-28°C
FAN SPEED SETTING	4 speed: Lo-Mi1-Mi2-Hi, 2 speed: Lo-Hi
AIR FLOW DIRECTION	Air Flow angles:100°-80°-60°-40° and auto swing
CLOCK DISPLAY	Displays the time on the desktop controller
INDOOR RETURN AIR TEMPERATURE	Displays the measured intake temperature from each group
ERROR INDICATION	Displays a 4 digit code and the affected unit address.
TIMER OPERATION	Weekly. Maximum of 3 time sequences with 3 Start/Stop times per day for all groups can be allocated
COMPATABILITY	AG150 and GB50

*NOTE 1: Applicable with AG150 / PAC-SC51KUA or GB50

AG150/GB50
Third Party Equipment Interfaces

The new third party equipment interfaces allow the user to monitor and control third party equipment from the AG150/GB50 web pages.



Technical Information

Third Party Interfaces

FUNCTION	DESCRIPTION	PAC-YG66DCA	PAC-YG63MCA
MAX No. OF INPUTS	-	2 x Digital	2 x Analogue
MAX No. OF OUTPUTS	-	2 x Digital	-
MAX No. OF EQUIPMENT	-	2	-
POWER SUPPLY	Power supply required	24VDC	24VDC
MONITOR	From AG150/GB50 web pages or TG2000	Run / Faults	Temperature / Humidity
CONTROL	From AG150/GB50 web pages or TG2000	On/Off	-
SIGNAL	Signal required to monitor and control equipment	Volt free contact	Temperature 4-20mA / 1-5V / 0-10V / Pt100 Humidity 4-20mA / 1-5V / 0-10V
DIMENSIONS - mm (WxDxH)	-	200x45x120	200x45x120

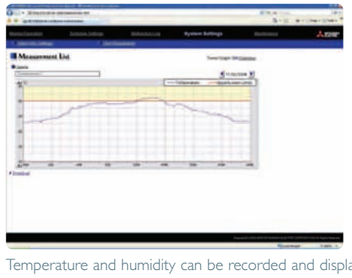
General Equipment

Third party equipment can be monitored and controlled from the web pages.

Temperature / Humidity

Temperature and humidity can be monitored.

Trend Logging



Temperature and humidity can be recorded and displayed.

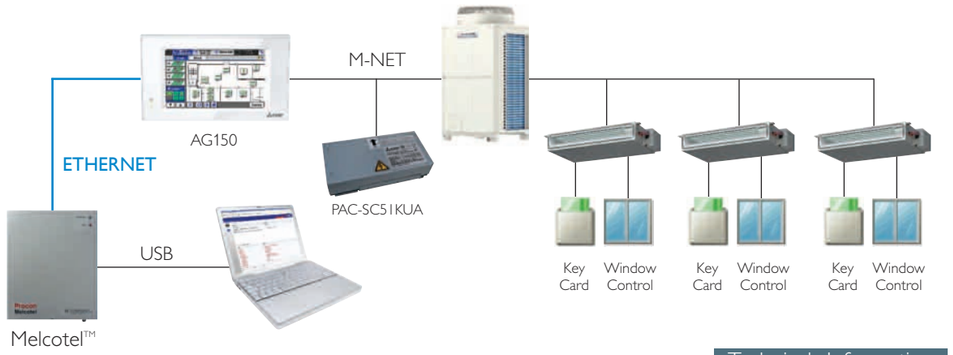
Temperature / Humidity Limit

Limit (high and low) can be set to trigger alarms via email.

*NOTE 1: Applicable with AG150 / PAC-SC51KUA or GB50
NOTE 2: Temperature Sensors and Humidity Sensors not supplied by MEUK

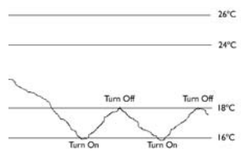
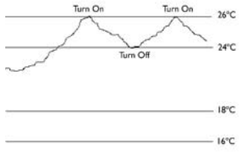
AG150/GB50 Melcotel™ Hotel Interface with Key Card System

The Melcotel™ hotel interface allows a hotel (for example) to have more accurate control over its air conditioning. The Melcotel™ works in conjunction with the key card system installed in each bedroom in many hotels. When the room is occupied, the Melcotel™ will switch ON the unit and reset the air conditioning to predetermined settings (for instance AUTO, 21°C). When the room is unoccupied, the Melcotel™ will monitor the temperature in the room. If the temperature is too low or too high, the Melcotel™ will restart the unit. The Melcotel™ also offers temperature adjustment facility based on the outside temperature and window open control, that allows the air conditioning to be switched off and controlled centrally when a window is opened. All of these functions provide a higher level of control and therefore more energy saving and a reduction in running costs.



Technical Information

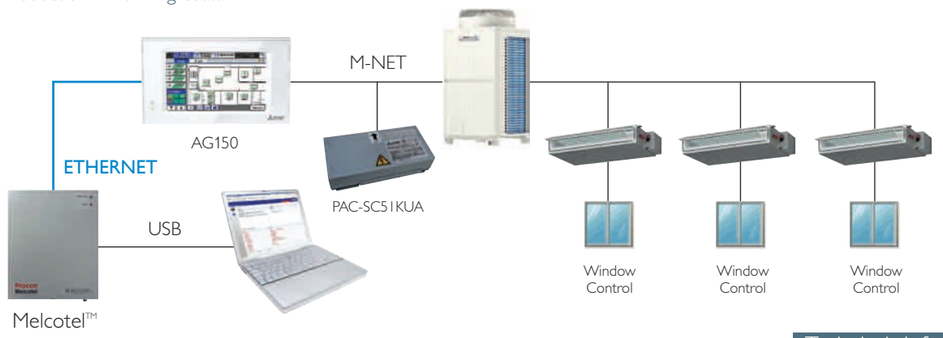
MELCOTEL™

FUNCTION	DESCRIPTION
MAX No. OF INDOOR UNITS	Up to 250 indoor units
TIME TO SWITCH ON	<30s
ON/OFF	Run and Stop operation for a single group
MODE SELECTION	Switches between Cool/Dry/Auto/Fan/Heat. Operation Mode will vary depending on the indoor unit. Auto mode is available with only R2 and WR2 systems
TEMPERATURE SETTING	Sets the groups temperature control. Cool/Dry: 19-30°C, Heat:17-28°C, Auto: 19-28°C
OCCUPIED ROOM SETTING	Configurable. ON, AUTO, 21°C (Factory setting)
UNOCCUPIED ROOM SETTING	 If the temperature is below 16°C the Melcotel™ restarts the unit to ON, HEAT, 19°C and stops the unit when the temperature has reached 18°C (Factory setting)  If the temperature is above 26°C the Melcotel™ restarts the unit to ON, COOL, 21°C and stops the unit when the temperature has reached 24°C (Factory setting)
SEASONS	Up to 4 seasons can be set-up to allow different occupied and unoccupied settings (Setpoint and mode)
OPTIONAL WINDOW CONTACT	If a window sensor is wired to the indoor unit, the Melcotel™ will automatically switch OFF the indoor unit when the window is opened
AUTOMATIC SETPOINT	The Melcotel™ will offset the occupied setpoint depending on the temperature outside (outdoor sensor supplied)
ADJUSTMENT NIGHT TIME OFFSET	During the night the Melcotel™ can offset the setpoint or just switch OFF the unit
INDOOR UNIT CONNECTION	The key card and the window contact is connected back locally to CN32. PAC-SA89TA required for each indoor unit
SOFTWARE	The Melcotel™ Configuration Manager allows the installer to set-up the interface using a USB cable. The Melcotel™ Live Status allows the user to monitor all the different values, for instance, Setpoint, Mode, Key Card IN or OUT, Window Contact etc
FIRE ALARM	Units will be switched off and the remote controller will be locked under fire alarm condition
POWER SUPPLY	240 VAC 2A
COMPATIBILITY	GB50 and AG150, but City Multi only
DIMENSIONS - mm (WxDxH)	300x70x350

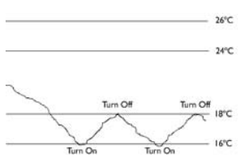
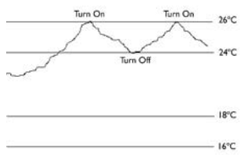
DEMONSTRATION Visit **www.melcotel.co.uk** for more details

AG150/GB50 Melcotel™ Hotel Interface without Key Card System

The Melcotel™ controller allows a hotel (for example) to have more accurate control over its air conditioning. When the unit has been switched ON by a user, the room is deemed as occupied and the Melcotel™ resets the air conditioning to predetermined settings (for instance AUTO, 21°C). After a preset time, the Melcotel™ will switch OFF the unit automatically. When the room is unoccupied, the Melcotel™ will monitor the temperature in the room. If the temperature is too low or too high, the Melcotel™ will restart the unit. The Melcotel™ also offers temperature adjustment facility based on the outside temperature and window open control, that allows the air conditioning to be switched off and controlled centrally when a window is opened. All of these functions provide a higher level of control and therefore more energy saving and a reduction in running costs.



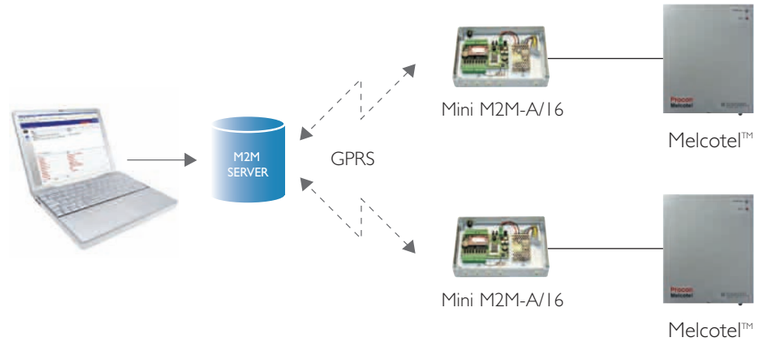
Technical Information

MELCOTEL™	
FUNCTION	**DESCRIPTION**
MAX No. OF INDOOR UNITS	Up to 250 indoor units
TIME TO SWITCH ON	<30s
ON/OFF	Run and Stop operation for a single group
MODE SELECTION	Switches between Cool/Dry/Auto/Fan/Heat. Operation Mode will vary depending on the indoor unit. Auto mode is available with only R2 and WR2 systems
TEMPERATURE SETTING	Sets the groups temperature control. Cool/Dry: 19-30°C, Heat:17-28°C, Auto: 19-28°C
OCCUPIED ROOM SETTING	Configurable. ON, AUTO, 21°C (Factory setting)
UNOCCUPIED ROOM SETTING	 If the temperature is below 16°C the Melcotel™ restarts the unit to ON, HEAT, 19°C and stops the unit when the temperature has reached 18°C (Factory setting)  If the temperature is above 26°C the Melcotel™ restarts the unit to ON, COOL, 21°C and stops the unit when the temperature has reached 24°C (Factory setting)
SEASONS	Up to 4 seasons can be set-up to allow different occupied and unoccupied settings (Setpoint and mode)
OPTIONAL WINDOW CONTACT	If a window sensor is wired to the indoor unit, the Melcotel™ will automatically switch OFF the indoor unit when the window is opened
AUTOMATIC SETPOINT	The Melcotel™ will offset the occupied setpoint depending on the temperature outside (outdoor sensor supplied)
AUTO SWITCH OFF	6 Off times can be preset to regularly switch OFF the indoor unit
ADJUSTMENT NIGHT TIME OFFSET	During the night the Melcotel™ can offset the setpoint or just switch OFF the unit
INDOOR UNIT CONNECTION	The window contact is connected back locally to CN32. PAC-SA89TA required for each indoor unit
SOFTWARE	The Melcotel™ Configuration Manager allows the installer to set-up the interface using a USB cable. The Melcotel™ Live Status allows the user to monitor all the different values, for instance, Setpoint, Mode, Window Contact etc
FIRE ALARM	Units will be switched off and the remote controller will be locked under fire alarm condition
POWER SUPPLY	240 VAC 2A
COMPATIBILITY	GB50 and AG150, but City Multi only
DIMENSIONS - mm (WxDxH)	300x70x350

DEMONSTRATION Visit **www.melcotel.co.uk** for more details

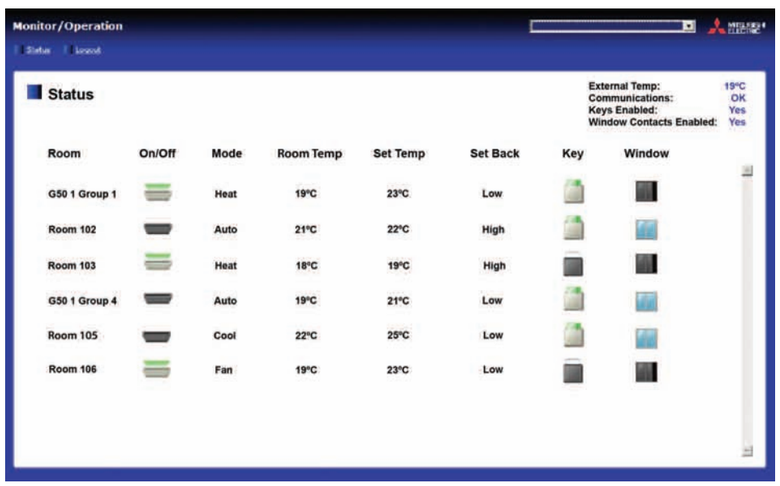
AG150/GB50 Melcotel™ Hotel Interface with Machine 2 Machine

The Melcotel™ hotel interface can be connected to the Mini M2M Machine 2 Machine interface to allow remote monitoring of the air conditioning, but also the window contact and the key card system.



Technical Information

MELCOTEL™
FUNCTION
MAX No. OF INDOOR UNITS: UP TO 250
ON/OFF
MODE
ROOM TEMPERATURE
SET TEMPERATURE
SET BACK
KEY CARD
WINDOW SENSOR
EXTERNAL TEMPERATURE

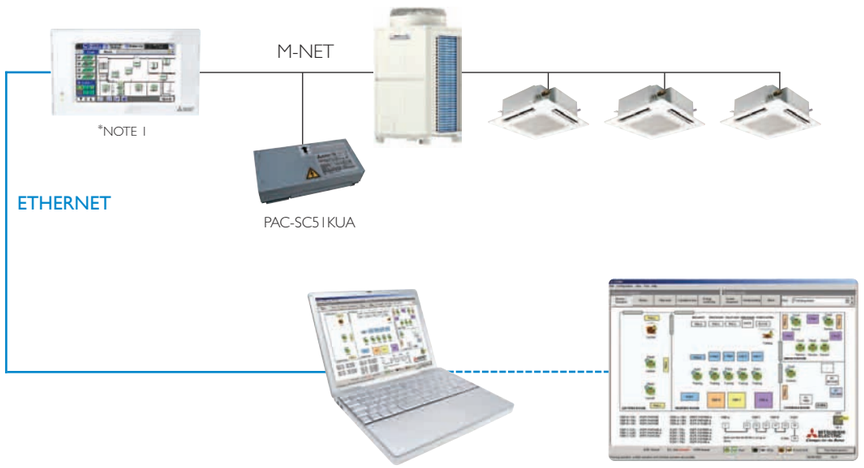


DEMONSTRATION Visit **www.melcotel.co.uk** for more details

TG2000 Software

PC Based Software Package

The TG2000 centralised PC based graphical software package allows the operator to control and monitor up to a maximum of 2000 indoor units. This software has been designed to connect directly to an air conditioning system via the AG150/GB50 controller, allowing the operator the required functionality to control and monitor the complete air conditioning system from a central location.



Technical Information

TG2000 PC Based software that works in conjunction with AG150/GB50 Controller

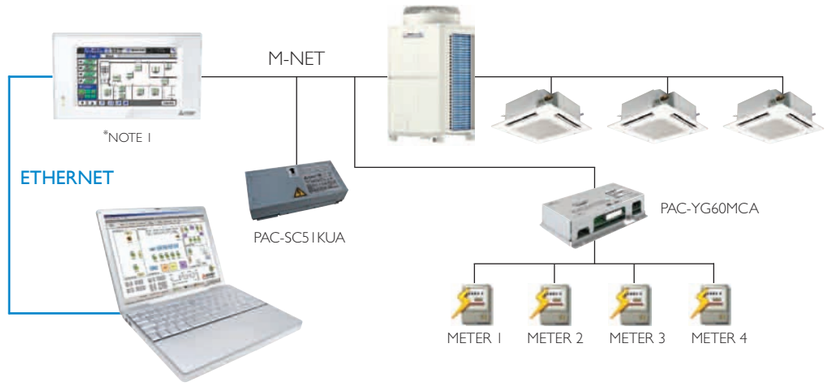
FUNCTION	DESCRIPTION
OPERATING PLATFORM	CPU 1000 Mhz, 512 MB RAM, 6GB or more. Internal LAN 10/100 MBps running Windows Professional 2000 service pack 4 or Windows Professional XP service pack 2 or Windows Vista or Windows 7
MAX No. OF INDOOR UNITS	2000 Indoor units, 50 indoor units per AG150/GB50
OPERATIONAL SECTIONS	The software package is split into two distinctive areas, System and Controls setting. System Setting: Password protected, System Configuration and group/block organisation, printer setting. Controls Setting: Normal Operation, monitoring and control functions as described below. The software allows individual indoor units to be allocated to logical groups, represented within user definable graphics screens, allocated during the system configuration
ON/OFF	Indicates the On/Off status of each group within the selected graphical screen or entire building
OPERATION MODE	Indicates the operational mode (Cool, Heat, Fan, Dry, Auto) for each group on the selected graphical screen
SET TEMPERATURE	Displays the set temperature for each group on the selected graphical screen. Also able to limit the set point range in both heating and cooling mode
AIR SPEED	Displays the current fan speed setting for each group on the selected graphical screen
REMOTE CONTROLLER PROHIBIT/PERMIT	Displays the current prohibit/permit status for each groups remote controller on the selected graphical screen
ABNORMALITY (FAULT) MONITORING	Individual indoor unit fault monitoring is recorded within the fault log for both viewing and printing. Fault monitoring can also be viewed via the fault log for all units associated with a particular graphical screen or the entire building. Faults can also be tracked and printed using date of failure, date of recovery and error code
ROOM TEMPERATURE MONITORING	Displays the return air temperature of the master indoor unit within a group
SCHEDULED ON/OFF	On/Off schedules can be set for each group, each graphical screen or the entire building
ENERGY SAVE CONTROL	Individual indoor unit, group of indoor units or a complete system can be controlled. There are various energy saving options available (Optional)
TREND LOGGING	Able to log: Return air temperature, setpoint, mode, On/Off, power consumption by group or by indoor unit, watt-hour meter and then email to customer
GRAPHICAL SCREENS	The complete system configurations can be allocated between multiple screens. Each screen can display a bitmap image representing the area of the building or floor where the units or groups are physically located
EMAIL	The following information may be sent regularly and automatically via email: energy monitoring data, energy saving data, trend logging data (temperatures etc) and fault code history

*NOTE 1: Applicable with AG150 / PAC-SC51KUA or GB50

TG2000 Software with Energy Monitoring

PC Based Software Package

The TG2000 centralised PC based graphical software package allows the operator to control and monitor up to a maximum of 2000 indoor units. This software has been designed to connect directly to an air conditioning system via the AG150/GB50 controller, allowing the operator all the required functionality to control and monitor the complete air conditioning system from a central location. In addition to providing a centralised control facility, the TG2000 allows complete energy consumption data to be logged with user definable billing groups and electrical tariffs for billing purposes.



Technical Information

TG2000 Software with Energy Monitoring

FUNCTION	DESCRIPTION
OPERATING PLATFORM	CPU 1000 Mhz, 512 MB RAM, 6GB or more. Internal LAN 10/100 MBps running Windows Professional 2000 service pack 4 or Windows Professional XP service pack 2 or Windows Vista or Windows 7
MAX No. OF INDOOR UNITS	2000 Indoor units, 50 indoor units per AG150/GB50
OPERATIONAL SECTIONS	The software package is split into two distinctive areas, System and Controls setting. System Setting: Password protected, System Configuration and group/block organisation, printer setting. Controls Setting: Normal Operation, monitoring and control functions as described below. The software allows individual indoor units to be allocated to logical groups, represented within user definable graphics screens, allocated during the system configuration
ON/OFF	Indicates the On/Off status of each group within the selected graphical screen or entire building
OPERATION MODE	Indicates the operational mode (Cool, Heat, Fan, Dry, Auto) for each group on the selected graphical screen
SET TEMPERATURE	Displays the set temperature for each group on the selected graphical screen. Also able to limit the set point range in both heating and cooling mode
AIR SPEED	Displays the current fan speed setting for each group on the selected graphical screen
REMOTE CONTROLLER PROHIBIT/PERMIT	Displays the current prohibit/permit status for each groups remote controller on the selected graphical screen
ABNORMALITY (FAULT) MONITORING	Individual indoor unit fault monitoring is recorded within the fault log for both viewing and printing. Fault monitoring can also be viewed via the fault log for all units associated with a particular graphical screen or the entire building. Faults can also be tracked and printed using date of failure, date of recovery and error code
ROOM TEMPERATURE MONITORING	Displays the return air temperature of the master indoor unit within a group
SCHEDULED ON/OFF	On/Off schedules can be set for each group, each graphical screen or the entire building
ENERGY CHARGING	Able to create or email bills for individual indoor units, groups of indoor units or a complete system (Optional) via the PAC-YG60MCA
WEB REFRIGERANT STATUS CHECK	Activate refrigerant volume checking function on Modular City Multi systems
ENERGY CHARGING	Able to create bills for individual indoor units, groups of indoor units or a complete system (Optional) via the PAC-YG60MCA
ENERGY SAVE CONTROL	Individual indoor unit, group of indoor units or a complete system can be controlled. There are various energy saving options available (Optional)
LOAD SHEDDING	Activate energy saving mode when energy consumption is too high
TREND LOGGING	Able to log: Return air temperature, setpoint, mode, On/Off, power consumption by group or by indoor unit, watt-hour meter and then email to customer
GRAPHICAL SCREENS	The complete system configurations can be allocated between multiple screens. Each screen can display a bitmap image representing the area of the building or floor where the units or groups are physically located
EMAIL	The following information may be sent regularly and automatically via email: energy monitoring data, energy saving data, trend logging data (temperatures etc) and fault code history

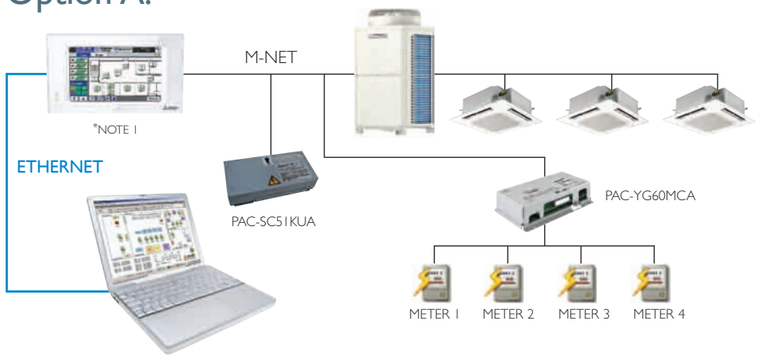
*NOTE 1: Applicable with AG150 / PAC-SC51KUA or GB50
NOTE 2: Energy Meters not supplied by MEUK

Energy Monitoring

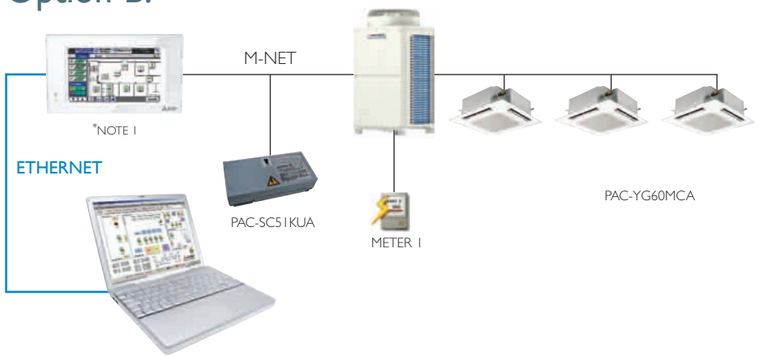
Energy monitoring is key to comply with Part L2 regulations. Some time ago we introduced the PAC-YG60MCA MNET interfaces, which can be connected anywhere on our MNET network and will monitor up to 4 pulse meters. These interfaces make installation easier, more cost effective and are shown in option A below.

This year, all of our City Multi outdoor units now have a direct connection to pulse meters. This means that the pulse meter can be connected to the outdoor unit directly, negating the need for interfaces, panels and a power supply and therefore reducing the installation cost significantly. This is shown in option B below.

Option A:



Option B:



Technical Information

Pulse Meter Direct Connection to City Multi Outdoor Unit

FUNCTION	PRODUCT REQUIRED	DESCRIPTION
OUTDOOR kW	AG150, AG150-Basic Energy Meters	The energy consumption of the outdoor can be monitored using the AG150 Webpages
INDOOR kW	AG150, AG150-Basic AG150-Energy, TG2000 Energy Meters	The energy consumption of the indoor unit can be estimated using the TG2000 software package. The software package will also allow the end user to generate bills with multiple tariffs

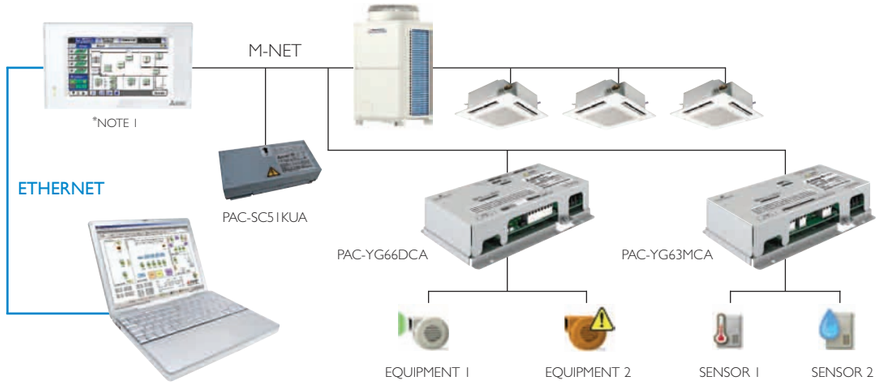
Product Required

PAC-SA89TA	Cable required to connect the pulse meter to the outdoor unit
PAC-CN32WHMC-UK	Jumper to activate the outdoor pulse input

TG2000 Software with Third Party Equipment

PC Based Software Package

The TG2000 centralised PC based graphical software package allows the operator to control and monitor up to a maximum of 2000 indoor units. This software has been designed to connect directly to an air conditioning system via the AG150/GB50 controller, allowing the operator all the required functionality to control and monitor the complete air conditioning system from a central location. In addition to providing a centralised control facility, the TG2000 allows you to monitor and control third party equipment.



Technical Information

TG2000 Software with Third Party Equipment

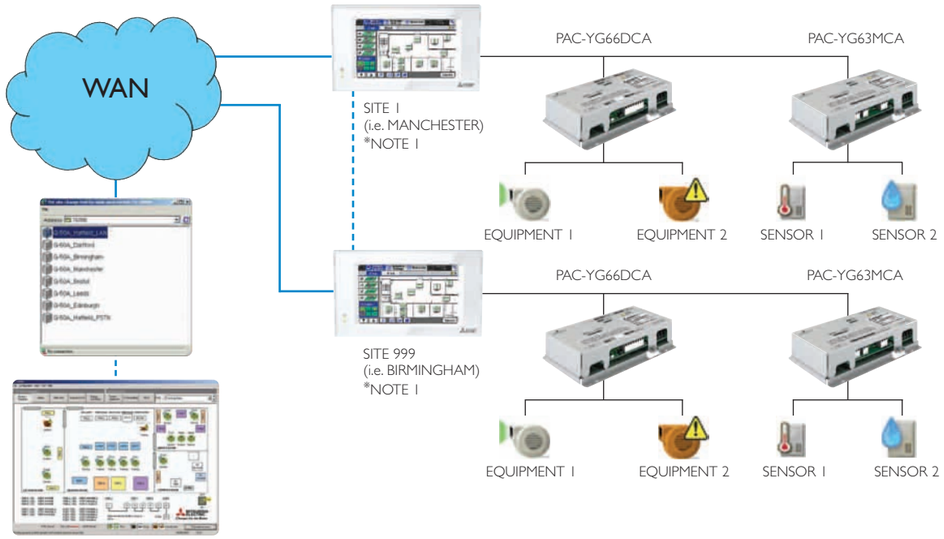
FUNCTION	DESCRIPTION
OPERATING PLATFORM	CPU 1000 Mhz, 512 MB RAM, 6GB or more. Internal LAN 10/100 MBps running Windows Professional 2000 service pack 4 or Windows Professional XP service pack 2 or Windows Vista or Windows 7
MAX No. OF INDOOR UNITS	2000 Indoor units, 50 indoor units per AG150/GB50
OPERATIONAL SECTIONS	The software package is split into two distinctive areas, System and Controls setting. System Setting: Password protected, System Configuration and group/block organisation, printer setting. Controls Setting: Normal Operation, monitoring and control functions as described below. The software allows individual indoor units to be allocated to logical groups, represented within user definable graphics screens, allocated during the system configuration
ON/OFF	Indicates the On/Off status of each group within the selected graphical screen or entire building
OPERATION MODE	Indicates the operational mode (Cool, Heat, Fan, Dry, Auto) for each group on the selected graphical screen
SET TEMPERATURE	Displays the set temperature for each group on the selected graphical screen. Also able to limit the set point range in both heating and cooling mode
AIR SPEED	Displays the current fan speed setting for each group on the selected graphical screen
REMOTE CONTROLLER PROHIBIT/PERMIT	Displays the current prohibit/permit status for each groups remote controller on the selected graphical screen
ABNORMALITY (FAULT) MONITORING	Individual indoor unit fault monitoring is recorded within the fault log for both viewing and printing. Fault monitoring can also be viewed via the fault log for all units associated with a particular graphical screen or the entire building. Faults can also be tracked and printed using date of failure, date of recovery and error code
ROOM TEMPERATURE MONITORING	Displays the return air temperature of the master indoor unit within a group
SCHEDULED ON/OFF	On/Off schedules can be set for each group, each graphical screen or the entire building
ENERGY SAVE CONTROL	Individual indoor unit, group of indoor units or a complete system can be controlled. There are various energy saving options available (Optional)
TREND LOGGING	Able to log: Return air temperature, setpoint, mode, On/Off, power consumption by group or by indoor unit, watt-hour meter and then email to customer
GRAPHICAL SCREENS	The complete system configurations can be allocated between multiple screens. Each screen can display a bitmap image representing the area of the building or floor where the units or groups are physically located
THIRD PARTY EQUIPMENT MONITOR	Monitor general equipment Run and Faults via the PAC-YG66DCA interface and Temperature and Humidity via the PAC-YG63MCA
THIRD PARTY EQUIPMENT CONTROL	Control general equipment On/Off via the PAC-YG66DCA
EMAIL	The following information may be sent regularly and automatically via email: energy monitoring data, energy saving data, trend logging data (temperatures etc) and fault code history

***NOTE 1**: Applicable with AG150 / PAC-SC51KUA or GB50
NOTE 2: Temperature and Humidity Sensors not supplied by MEUK

TG2000 WAN (Wide Area Network) Software

PC Based Software Package used to monitor and control multiple sites

The TG2000 WAN centralised PC based graphical software package allows the operator to control and monitor up to a maximum of 1000 sites. Utilising the companies Wide Area Network, the complete (geographically distributed) air conditioning asset base can be controlled and monitored from a centralised location.



Technical Information

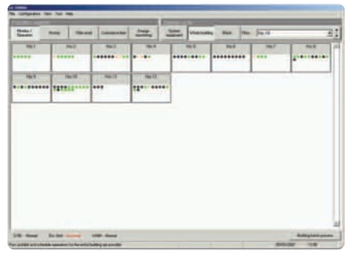
TG2000WAN (Wide Area Network) Software

FUNCTION	DESCRIPTION
OPERATING PLATFORM	CPU 1000 Mhz, 512 MB RAM, 6GB or more. Internal LAN 10/100 MBps running Windows Professional 2000 service pack 4 or Windows Professional XP service pack 2 or Windows Vista or Windows 7
MAX No. OF SITES	1000
MAX No. OF INDOOR UNITS PER SITE	2000 Indoor units, 50 indoor units per AG150/GB50 (per site)
OPERATIONAL SECTIONS	The software package is split into two distinctive areas, System and Controls setting. System Setting: Password protected, System Configuration and group/block organisation, printer setting. Controls Setting: Normal Operation, monitoring and control functions as described below. The software allows individual indoor units to be allocated to logical groups, represented within user definable graphics screens, allocated during the system configuration
ON/OFF	Indicates the On/Off status of each group within the selected graphical screen or entire building
OPERATION MODE	Indicates the operational mode (Cool, Heat, Fan, Dry, Auto) for each group on the selected graphical screen
SET TEMPERATURE	Displays the set temperature for each group on the selected graphical screen. Also able to limit the set point range in both heating and cooling mode
AIR SPEED	Displays the current fan speed setting for each group on the selected graphical screen
REMOTE CONTROLLER PROHIBIT/PERMIT	Displays the current prohibit/permit status for each groups remote controller on the selected graphical screen
ABNORMALITY (FAULT) MONITORING	Individual indoor unit fault monitoring is recorded within the fault log for both viewing and printing. Fault monitoring can also be viewed via the fault log for all units associated with a particular graphical screen or the entire building. Faults can also be tracked and printed using date of failure, date of recovery and error code
ROOM TEMPERATURE MONITORING	Displays the return air temperature of the master indoor unit within a group
SCHEDULED ON/OFF	On/Off schedules can be set for each group, each graphical screen or the entire building
GRAPHICAL SCREENS	The complete system configurations can be allocated between multiple screens. Each screen can display a bitmap image representing the area of the building or floor where the units or groups are physically located
THIRD PARTY EQUIPMENT MONITORING	Monitor general equipment Run and Faults via the PAC-YG66DCA interface and Temperature and Humidity via the PAC-YG63MCA
THIRD PARTY EQUIPMENT CONTROL	Control general equipment On/Off via the PAC-YG66DCA
EMAIL	The following information may be sent regularly and automatically via email: energy monitoring data, energy saving data, trend logging data (temperatures etc) and fault code history

*NOTE 1: Applicable with AG150 / PAC-SC51KUA or GB50
NOTE 2: The TG2000 WAN cannot be utilised if the following site functions are required: energy charging, energy saving and trend logging.
NOTE 3: Temperature and Humidity Sensors not supplied by MEUK

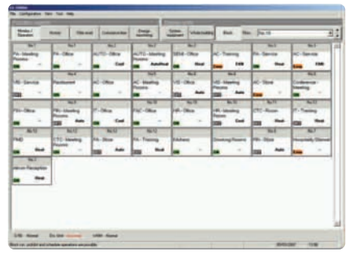
TG2000 Screenshots

Display Whole



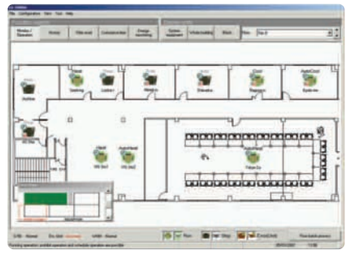
The 2000 indoor units status may be shown on one screen.

Display Block



Block may be set for each area. Settings may be changed by one click of the mouse for each area.

Display Floor



AutoCAD drawing may be imported to TG2000 to display floor screens.

Remote Controller Settings

Click on any icons in the floor view to access the remote controller settings. Buttons on the local controllers may be locked (On/Off, Mode, Setpoint, Filter reset).

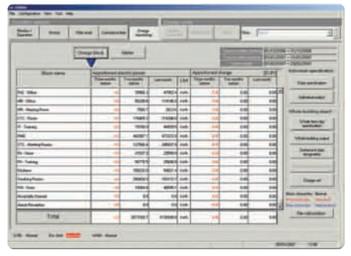
Daily, Weekly and Annual Scheduling

Scheduling may be set from the TG2000. A night set back operation is available (HEAT, 12°C).

Monitor Fault Codes

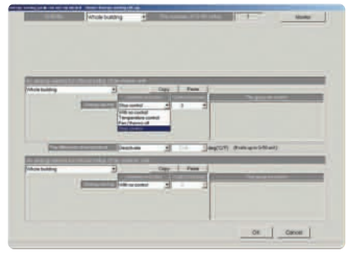
Faults with the unit address can be displayed under fault conditions.

Energy Monitoring (AG150 Energy PIN code)



TG2000 in conjunction with energy meters can monitor the energy consumption for each outdoor unit, indoor unit or area. The indoor unit run hours can also be displayed.

Energy Saving (AG150 Energy PIN code)



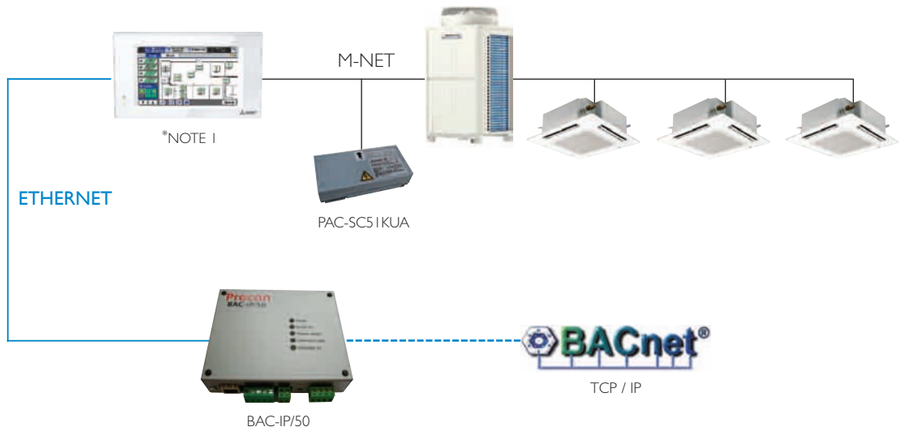
TG2000 offers different energy saving options including load shedding.

Icons available to suit model type installed

BEMS BACnet® Interface

Procon™ BAC-IP/50

To further enhance our complete open system network offering, we offer a BACnet® interface solution. Utilising the ASHRAE BACnet® standard, complete control and monitoring integration can be achieved with up to 50 air conditioning units.



Technical Information

BACnet® INTERFACE

FUNCTION	BAC-IP/50	COMPATIBLE WITH
MAX No. OF INDOOR UNITS	50	Andover Controls
CENTRALISED CONTROLLER REQUIRED	Yes (AG150 or GB50)	York BMS
POWER SUPPLY	24VAC 0.5A	Siemens
COMPATIBILITY	City Multi Mr Slim via PAC-SF81MA M Series via MAC-399IF	Priva Building Intelligence
BEMS CONNECTION	Ethernet via HUB	Delta Controls
DIMENSIONS - mm (WxDxH)	144x34x104	

BACnet® INTERFACE

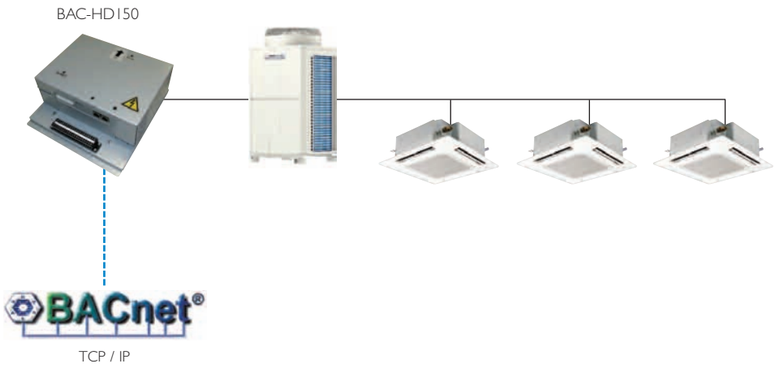
FUNCTION	NETWORK VARIABLE	POINT TYPE	NOTES
Control			
	On/Off	Digital Input	Run/Stop
	Mode Operation	Analogue Input	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Analogue Input	Cooling 19-30°C, Heating 17-28°C, Auto 19-28°C
	Fan Speed Control	Analogue Input	Lo-Mi1-Mi2-Hi
	Permit / Prohibit	Digital Input	On/Off, Mode, Setpoint
	Airflow Direction	Analogue Input	Horizontal - 60,80,100° swing
	Filter Sign	Digital Input	Normal/Reset
Monitor			
	On/Off	Digital Output	Run/Stop
	Mode Operation	Analogue Output	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Analogue Output	Cooling 19-30°C, Heating 17-28°C, Auto 19-28°C
	Fan Speed Control	Analogue Output	Lo-Mi1-Mi2-Hi
	Permit / Prohibit	Digital Output	On/Off, Mode, Setpoint
	Airflow Direction	Analogue Output	Horizontal - 60,80,100° swing
	Fault Code	Analogue Output	4 Character code - Indicates all unit alarms
	Filter Sign	Digital Output	-
	Room Temperature	Analogue Output	-

*NOTE 1: Applicable with AG150 / PAC-SC51KUA or GB50

BEMS BACnet® Interface

BAC-HD150

To further enhance our complete open system network offering, we offer a BACnet® interface solution. Utilising the ASHRAE BACnet® standard, complete control and monitoring integration can be achieved with up to 50 air conditioning units.



Technical Information

BACnet® INTERFACE

FUNCTION	BAC-HD150	COMPATIBLE WITH
MAX No. OF INDOOR UNITS	50	Andover Controls
CENTRALISED CONTROLLER REQUIRED	No	York BMS
POWER SUPPLY	240VAC 3.2A	Siemens
COMPATIBILITY	City Multi Mr Slim via PAC-SF81MA M Series via MAC-399IF	Priva Building Intelligence
BEMS CONNECTION	Ethernet	Delta Controls
DIMENSIONS - mm (WxDxH)	250x97x266	

BACnet® INTERFACE

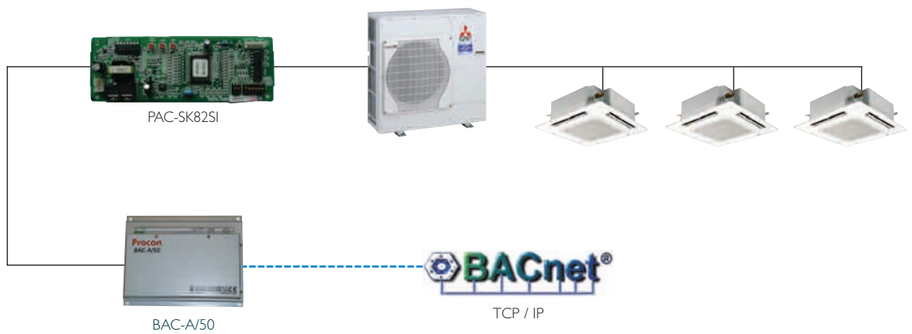
FUNCTION	NETWORK VARIABLE	POINT TYPE	NOTES
Control			
	On/Off	Digital Input	Run/Stop
	Mode Operation	Analogue Input	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Analogue Input	Cooling 19-30°C, Heating 17-28°C, Auto 19-28°C
	Fan Speed Control	Analogue Input	Lo-Mi1-Mi2-Hi
	Permit / Prohibit	Digital Input	On/Off, Mode, Setpoint
	Airflow Direction	Analogue Input	Horizontal - 60,80,100° swing
	Filter Sign	Digital Input	Normal/Reset
Monitor			
	On/Off	Digital Output	Run/Stop
	Mode Operation	Analogue Output	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Analogue Output	Cooling 19-30°C, Heating 17-28°C, Auto 19-28°C
	Fan Speed Control	Analogue Output	Lo-Mi1-Mi2-Hi
	Permit / Prohibit	Digital Output	On/Off, Mode, Setpoint
	Airflow Direction	Analogue Output	Horizontal - 60,80,100° swing
	Fault Code	Analogue Output	4 Character code - Indicates all unit alarms
	Filter Sign	Digital Output	-
	Room Temperature	Analogue Output	-

*NOTE 1: Applicable with AG150 / PAC-SC51KUA or GB50

BEMS BACnet® Mr Slim Interface

Procon™ BAC-A/50

A new BACnet® Interface has been specially developed for the Mr Slim systems. The BAC-A/50 can control up to 50 individual systems.



Technical Information

BACnet® MR SLIM INTERFACE

FUNCTION	BAC-A/50	COMPATIBLE WITH
MAX No. OF INDOOR UNITS	50	Andover Controls
CENTRALISED CONTROLLER REQUIRED	No	York BMS
POWER SUPPLY	240VAC 0.5A	Siemens
COMPATIBILITY	Mr Slim via PAC-SK82SI	Priva Building Intelligence
BEMS CONNECTION	Ethernet	
DIMENSIONS - mm (WxDxH)	270x75x210	Delta Controls

BACnet® MR SLIM INTERFACE

FUNCTION	NETWORK VARIABLE	POINT TYPE	NOTES
Control			
	On/Off	Digital Input	Run/Stop
	Mode Operation	Analogue Input	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Analogue Input	Cooling 19-30°C, Heating 17-28°C, Auto 19-28°C
	Fan Speed Control	Analogue Input	Lo-Mi1-Mi2-Hi
	Permit / Prohibit	Digital Input	On/Off, Mode, Setpoint
	Filter Sign	Digital Input	Normal/Reset
Monitor			
	On/Off	Digital Output	Run/Stop
	Mode Operation	Analogue Output	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Analogue Output	Cooling 19-30°C, Heating 17-28°C, Auto 19-28°C
	Fan Speed Control	Analogue Output	Lo-Mi1-Mi2-Hi
	Permit / Prohibit	Digital Output	On/Off, Mode, Setpoint
	Fault Code	Analogue Output	4 Character code - Indicates all unit alarms
	Filter Sign	Digital Output	-
	Room Temperature	Analogue Output	-

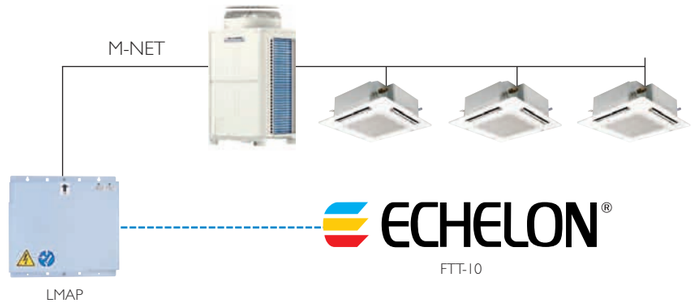
*NOTE 1: Applicable with AG150 / PAC-SC51KUA or GB50

BEMS LonWorks® Interface

LMAP

The Mitsubishi Electric LMAP continues to strengthen the ability of our products to interface with other third party building control systems using the globally recognised and accepted open network protocol Echelon LonWorks®. LonWorks® was introduced into the building services industry a number of years ago with the aim of establishing itself as the defacto communications standard. Many hundreds of products now exist that utilise the LonWorks® protocol from complete systems like BEMS, lighting, power monitoring and security down to simple sensors and relay switches.

To ensure that our products can connect directly and easily with other LonWorks® products, the L-MAP02 was designed utilising Echelon MIPS technology and was the first to provide data in the LonWorks® SNVT (Standard Network Variable Type) format.



Technical Information

LMAP LonWorks® INTERFACE

FUNCTION	LMAP	COMPATIBLE WITH
MAX No. OF INDOOR UNITS	50	Honeywell
CENTRALISED CONTROLLER REQUIRED	No	Johnson Controls
POWER SUPPLY	240VAC 0.5A	
COMPATIBILITY	City Multi Mr Slim via PAC-SF81MA M Series via MAC-399IF	Realtime Control Systems (LTX51/LTX21 via VCI)
BEMS CONNECTION	LonWorks FTT-10	
DIMENSIONS - mm (WxDxH)	340x60x360	Smart Controls

LMAP LonWorks® INTERFACE

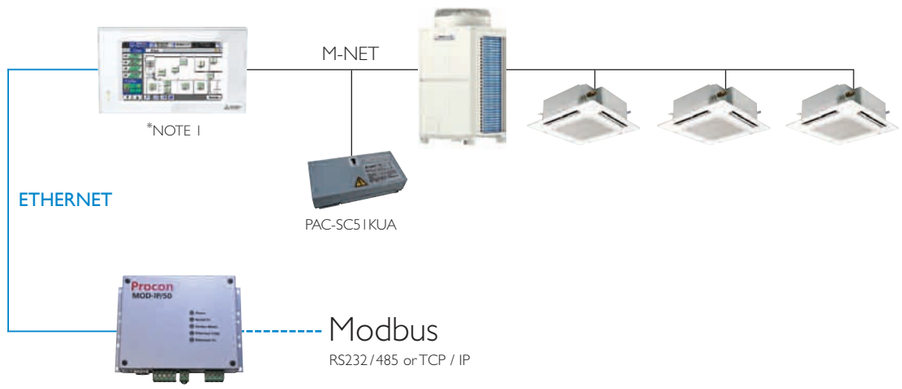
FUNCTION	NETWORK VARIABLE	POINT TYPE	NOTES
Control			
	On/Off	Digital Input	Run/Stop
	Mode Operation	Analogue Input	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Analogue Input	Cooling 19-30°C, Heating 17-28°C, Auto 19-28°C
	Fan Speed Control	Analogue Input	Lo-Mi1-Mi2-Hi
	Permit / Prohibit	Digital Input	On/Off, Mode, Setpoint (only available when using PAC-YT51CRA or PAR-21MAA)
	Filter Sign	Digital Input	Normal/Reset
Monitor			
	On/Off	Digital Output	Run/Stop
	Mode Operation	Analogue Output	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Analogue Output	Cooling 19-30°C, Heating 17-28°C, Auto 19-28°C
	Fan Speed Control	Analogue Output	Lo-Mi1-Mi2-Hi
	Permit / Prohibit	Digital Output	On/Off, Mode, Setpoint (only available when using PAC-YT51CRA or PAR-21MAA)
	Fault Code	Analogue Output	4 Character code - Indicates all unit alarms
	Filter Sign	Digital Output	-
	Room Temperature	Analogue Output	-

*NOTE 1: Applicable with AG150 / PAC-SC51KUA or GB50

BEMS Modbus Interface

Procon™ MOD-IP/50

To further complement the existing control and interface product ranges being offered by Mitsubishi Electric to support their air conditioning systems, the Modbus range has been developed to accommodate the typical end-user needs as experienced within the UK market.



Technical Information

MODBUS INTERFACE

FUNCTION	MOD-IP/50	COMPATIBLE WITH
MAX No. OF INDOOR UNITS	50	Trend via Synapsys SXNC200
CENTRALISED CONTROLLER REQUIRED	Yes (AG150 or GB50)	Cylon
POWER SUPPLY	240VAC 0.5A	Satchwell
COMPATIBILITY	City Multi Mr Slim via PAC-SF81MA M Series via MAC-399IF	Crestron (Home automation) Invensys Interactive Homes North BT
BEMS CONNECTION	Serial RS232, RS485 or TCP / IP	Andover
DIMENSIONS - mm (WxDxH)	144x34x104	Siemens

MODBUS INTERFACE - OPERATIONAL INFORMATION

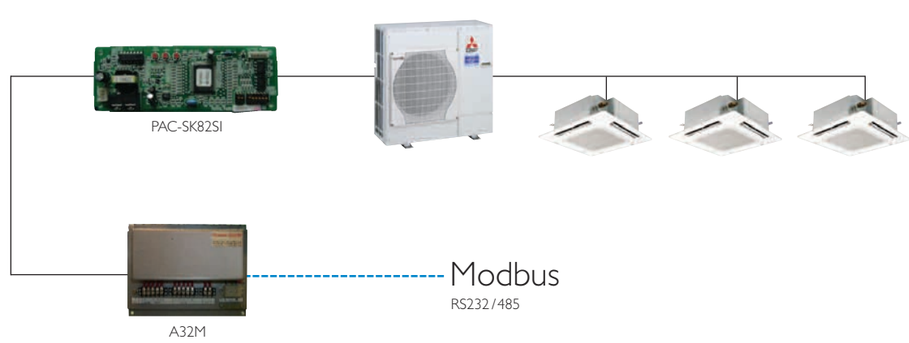
FUNCTION	NETWORK VARIABLE	POINT TYPE	NOTES
Control			
	On/Off	Digital Input	Run/Stop
	Mode Operation	Analogue Input	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Analogue Input	Cooling 19-30°C, Heating 17-28°C, Auto 19-28°C
	Fan Speed Control	Analogue Input	Lo-Mi1-Mi2-Hi
	Permit / Prohibit	Digital Input	On/Off, Mode, Setpoint
	Airflow Direction	Analogue Input	Horizontal - 60,80,100° swing
	Filter Sign	Digital Input	Normal/Reset
Monitor			
	On/Off	Digital Output	Run/Stop
	Mode Operation	Analogue Output	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Analogue Output	Cooling 19-30°C, Heating 17-28°C, Auto 19-28°C
	Fan Speed Control	Analogue Output	Lo-Mi1-Mi2-Hi
	Permit / Prohibit	Digital Output	On/Off, Mode, Setpoint
	Airflow Direction	Analogue Output	Horizontal - 60,80,100° swing
	Fault Code	Analogue Output	4 Character code - Indicates all unit alarms
	Filter Sign	Digital Output	-
	Room Temperature	Analogue Output	-

*NOTE 1: Applicable with AG150 / PAC-SC51KUA or GB50

BEMS Modbus Mr Slim Interface

Procon™ A32M

To further complement the existing control and interface product ranges being offered by Mitsubishi Electric to support their air conditioning systems, the Modbus range has been developed to accommodate the typical end-user needs as experienced within the UK market.



Technical Information

MODBUS MR SLIM INTERFACE

FUNCTION	A32M	COMPATIBLE WITH
MAX No. OF INDOOR UNITS	32	Trend via Synapsys SXNC200
CENTRALISED CONTROLLER REQUIRED	No	Cylon
POWER SUPPLY	240VAC 0.5A	Satchwell
COMPATIBILITY	Mr Slim via PAC-SK82SI	Crestron (Home automation) Invensys Interactive Homes North BT
BEMS CONNECTION	Serial RS232 or 485	Andover
DIMENSIONS - mm (WxDxH)	270x75x210	Siemens

MODBUS MR SLIM INTERFACE - OPERATIONAL INFORMATION

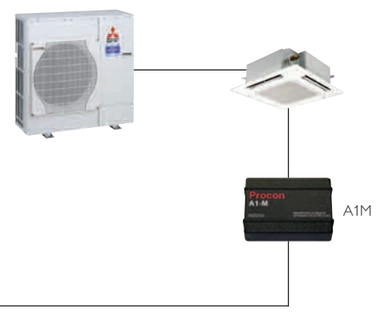
FUNCTION	NETWORK VARIABLE	POINT TYPE	NOTES
Control			
	On/Off	Digital Input	Run/Stop
	Mode Operation	Analogue Input	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Analogue Input	Cooling 19-30°C Heating 17-28°C Auto 19-28°C
	Fan Speed Control	Analogue Input	Lo-Mi1-Mi2-Hi
Monitor			
	On/Off	Digital Output	Run/Stop
	Mode Operation	Analogue Output	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Analogue Output	Cooling 19-30°C Heating 17-28°C Auto 19-28°C
	Fan Speed Control	Analogue Output	Lo-Mi1-Mi2-Hi
	Fault Code	Analogue Output	4 Character code - Indicates all unit alarms
	Room Temperature	Analogue Output	-

NOTE: Not available on SEZ / SLZ

BEMS Modbus Splits Interface

Procon™ A1M

To further complement the existing control and interface product ranges being offered by Mitsubishi Electric to support their air conditioning systems, the Modbus range has been developed to accommodate the typical end-user needs as experienced within the UK market.



Technical Information

MODBUS SPLITS INTERFACE

FUNCTION	A1M	COMPATIBLE WITH
MAX No. OF INDOOR UNITS	1	Trend via Synapsys SXNC200 Cylon Satchwell Crestron (Home automation) Invensys Interactive Homes North BT Andover Siemens
CENTRALISED CONTROLLER REQUIRED	No	
COMPATIBILITY	M Series Mr Slim	
BEMS CONNECTION	Serial RS485	
DIMENSIONS - mm (WxDxH)	72x27x50	

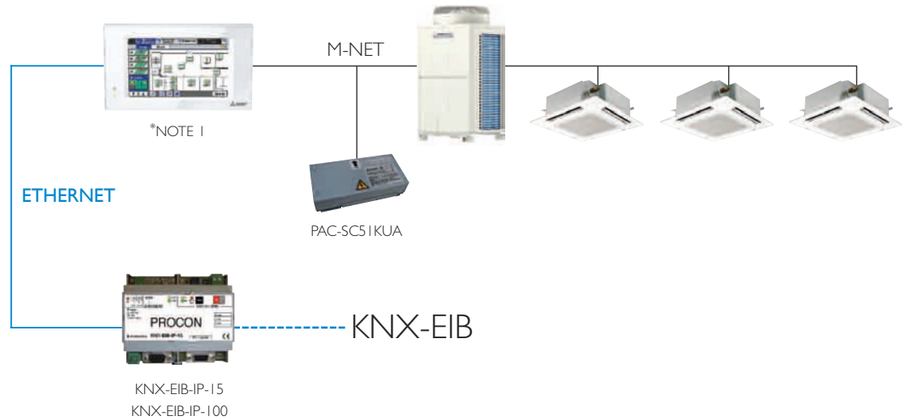
MODBUS SPLITS INTERFACE - OPERATIONAL INFORMATION

FUNCTION	NETWORK VARIABLE	POINT TYPE	NOTES
Control			
	On/Off	Digital Input	Run/Stop
	Mode Operation	Analogue Input	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Analogue Input	Cooling 19-30°C Heating 17-28°C Auto 19-28°C
	Fan Speed Control	Analogue Input	Lo-Mi1-Mi2-Hi
Monitor			
	On/Off	Digital Output	Run/Stop
	Mode Operation	Analogue Output	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Analogue Output	Cooling 19-30°C Heating 17-28°C Auto 19-28°C
	Fan Speed Control	Analogue Output	Lo-Mi1-Mi2-Hi
	Fault Code	Analogue Output	4 Character code - Indicates all unit alarms
	Room Temperature	Analogue Output	-

BEMS KNX-EIB Interfaces

Procon™ KNX-EIB-IP-15/100

To further complement the existing control and interface product ranges being offered by Mitsubishi Electric to support their air conditioning systems, the KNX-EIB range has been developed to accommodate the typical end-user needs as experienced within the UK market.



Technical Information

KNX-EIB CITY MULTI INTERFACES

FUNCTION	KNX-EIB-IP-15	KNX-EIB-IP-100	COMPATIBLE WITH
MAX No. OF INDOOR UNITS	15	100	ABB Intelligent Buildings Nova Controls Ltd Siemens
CENTRALISED CONTROLLER REQUIRED	Yes (AG150 or GB50)	Yes (AG150 or GB50)	
POWER SUPPLY	9 to 30VDC or 24VAC 0.5A	9 to 30VDC or 24VAC 0.5A	
COMPATIBILITY	City Multi Mr Slim via PAC-SF81MA M Series via MAC-399IF	City Multi Mr Slim via PAC-SF81MA M Series via MAC-399IF	
BEMS CONNECTION	Ethernet via HUB	Ethernet via HUB	
DIMENSIONS - mm (WxDxH)	107x58x105	107x58x105	

KNX-EIB CITY MULTI INTERFACE UNITS - OPERATIONAL INFORMATION

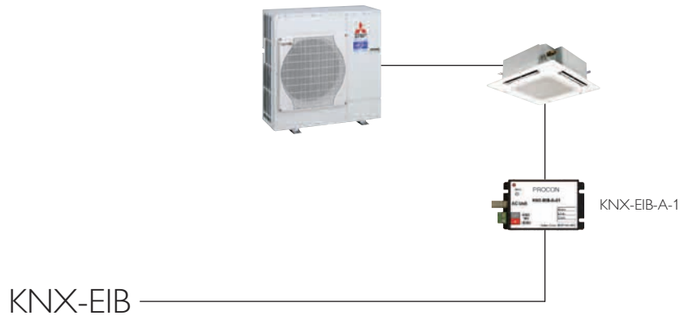
FUNCTION	NETWORK VARIABLE	POINT TYPE	NOTES
Control			
	On/Off	Digital Input	Run/Stop
	Mode Operation	Analogue Input	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Analogue Input	Cooling 19-30°C Heating 17-28°C Auto 19-28°C
	Fan Speed Control	Analogue Input	Lo-Mi1-Mi2-Hi
Monitor			
	On/Off	Digital Output	Run/Stop
	Mode Operation	Analogue Output	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Analogue Output	Cooling 19-30°C Heating 17-28°C Auto 19-28°C
	Fan Speed Control	Analogue Output	Lo-Mi1-Mi2-Hi
	Fault Code	Analogue Output	4 Character code - Indicates all unit alarms
	Room Temperature	Analogue Output	-

*NOTE 1: Applicable with AG150 / PAC-SC51KUA or GB50

BEMS KNX-EIB Splits Interface

Procon™ KNX-EIB-A-1

To further complement the existing control and interface product ranges being offered by Mitsubishi Electric to support their air conditioning systems, the KNX-EIB range has been developed to accommodate the typical end-user needs as experienced within the UK market.



Technical Information

KNX-EIB SPLITS INTERFACE

FUNCTION	KNX-EIB-A-1	COMPATIBLE WITH
MAX No. OF INDOOR UNITS	1	ABB
CENTRALISED CONTROLLER REQUIRED	No	Intelligent Buildings
COMPATIBILITY	M Series Mr Slim	Nova Controls Ltd
BEMS CONNECTION	KNX (TP-1) EIB	Siemens
DIMENSIONS - mm (WxDxH)	60x25x48	

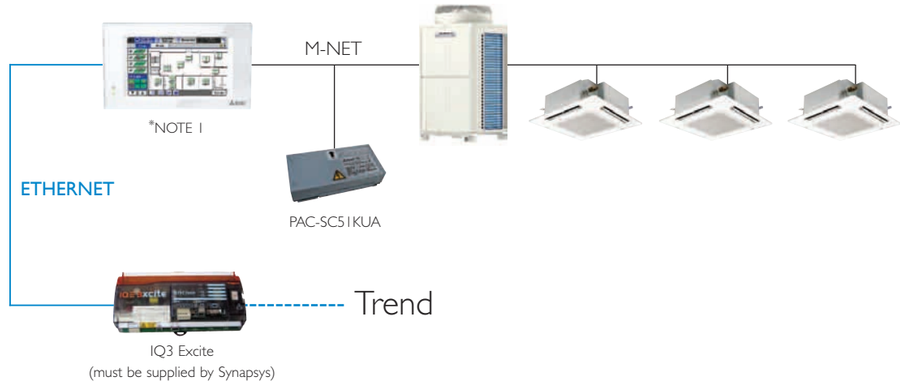
KNX-EIB SPLITS INTERFACE - OPERATIONAL INFORMATION

FUNCTION	NETWORK VARIABLE	POINT TYPE	NOTES
Control			
	On/Off	Digital Input	Run/Stop
	Mode Operation	Analogue Input	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Analogue Input	Cooling 19-30°C Heating 17-28°C Auto 19-28°C
	Fan Speed Control	Analogue Input	Lo-Mi1-Mi2-Hi
Monitor			
	On/Off	Digital Output	Run/Stop
	Mode Operation	Analogue Output	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Analogue Output	Cooling 19-30°C Heating 17-28°C Auto 19-28°C
	Fan Speed Control	Analogue Output	Lo-Mi1-Mi2-Hi
	Fault Code	Analogue Output	4 Character code - Indicates all unit alarms
	Room Temperature	Analogue Output	-

BEMS Trend Interface

Trend IQ3 Excite

Mitsubishi Electric and Synapsys Solutions have been working together for the last six years to offer very competitive solutions for Trend users. The IQ3 Excite Interface has been modified by Synapsys Solutions to work directly in conjunction with the AG150 and GB50 centralised controllers. This allows Trend users to easily integrate Trend systems with Mitsubishi Electric air conditioning.



Technical Information

TREND INTERFACE

FUNCTION	IQ3 EXCITE	COMPATIBLE WITH
MAX No. OF INDOOR UNITS	50	Trend only
CENTRALISED CONTROLLER REQUIRED	Yes (AG150 or GB50)	
POWER SUPPLY	240VAC	
COMPATIBILITY	City Multi Mr Slim via PAC-SF81MA M Series via MAC-399IF	
BEMS CONNECTION	Ethernet via HUB	
DIMENSIONS - mm (WxDxH)	263x42x130	

IMPORTANT NOTE: The IQ3 Excite Interface can only be supported by Synapsys Solutions (Tel: 01273 831831)

TREND INTERFACES

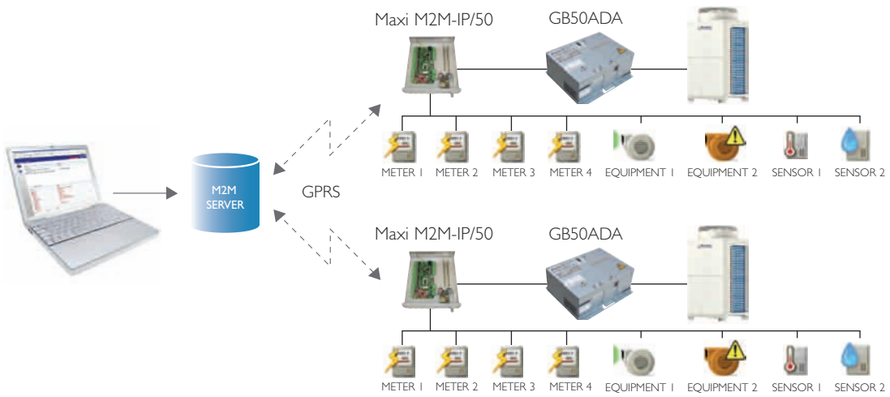
FUNCTION	NETWORK VARIABLE	POINT TYPE	NOTES
Control			
	On/Off	Switch	Run/Stop
	Mode Operation	Knob	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Knob	Cooling 19-30°C, Heating 17-28°C, Auto 19-28°C
	Fan Speed Control	Knob	Lo-Mi1-Mi2-Hi
	Permit / Prohibit	Digital Input	On/Off, Mode, Setpoint
	Airflow Direction	Knob	Horizontal - 60,80,100° swing
	Filter Sign	Digital Input	Normal/Reset
Monitor			
	On/Off	Switch	Run/Stop
	Mode Operation	Knob	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Knob	Cooling 19-30°C, Heating 17-28°C, Auto 19-28°C
	Fan Speed Control	Knob	Lo-Mi1-Mi2-Hi
	Permit / Prohibit	Digital Output	On/Off, Mode, Setpoint
	Airflow Direction	Knob	Horizontal - 60,80,100° swing
	Fault Code	Sensor	4 Character code - Indicates all unit alarms
	Filter Sign	Digital Output	-
	Room Temperature	Sensor	-

*NOTE 1: Applicable with AG150 / PAC-SC51KUA or GB50

M2M - Machine 2 Machine Interface

Procon™ Maxi M2M-IP/50

To offer remote management of its air conditioning units to companies with large numbers of dispersed offices, Mitsubishi Electric has adopted the M2M platform. The machine-to-machine (M2M) technology platform allows customers to integrate multiple sites into one network. The air conditioning units as well as third party equipment will be wirelessly connected to the M2M server and use the GPRS network to communicate.



Technical Information

M2M INTERFACE

FUNCTION	DESCRIPTION
MAX No. OF INPUTS	22 (4 to 20mA, 0 to 10VDC, 10k☐ resistor, digital)
MAX No. OF OUTPUTS	4 (volt free contact) 12 (pulse with modulation)
MAX No. OF INDOOR UNITS	50
SIM CARD	Vodafone Sim Card supplied with one year contract
M2M SERVER HOSTING	First year free of charge
POWER SUPPLY	240VAC 2A
COMPATIBILITY	City Multi, Mr Slim and M Series
DIMENSIONS - mm (WxDxH)	300x70x350

M2M INTERFACE - OPERATIONAL INFORMATION

FUNCTION	NETWORK VARIABLE	UP TO 25 GROUPS	UP TO 50 GROUPS	NOTES
Control				
	On/Off	✔	✔	Run/Stop
	Mode Operation	✔	✔	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	✔	✔	Cooling 19-30°C, Heating 17-28°C, Auto 19-28°C
	Fan Speed Control	✔		Lo-Mi1-Mi2-Hi
	Permit / Prohibit	✔		On/Off, Mode, Setpoint
	Airflow Direction	✔		Horizontal - 60,80,100° swing
	Filter Sign	✔		Normal/Reset
Monitor				
	On/Off	✔	✔	Run/Stop
	Mode Operation	✔	✔	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	✔	✔	Cooling 19-30°C, Heating 17-28°C, Auto 19-28°C
	Fan Speed Control	✔		Lo-Mi1-Mi2-Hi
	Permit / Prohibit	✔		On/Off, Mode, Setpoint
	Airflow Direction	✔		Horizontal - 60,80,100° swing
	Fault Code	✔	✔	4 Character code - Indicates all unit alarms
	Filter Sign	✔		-
	Room Temperature	✔	✔	-

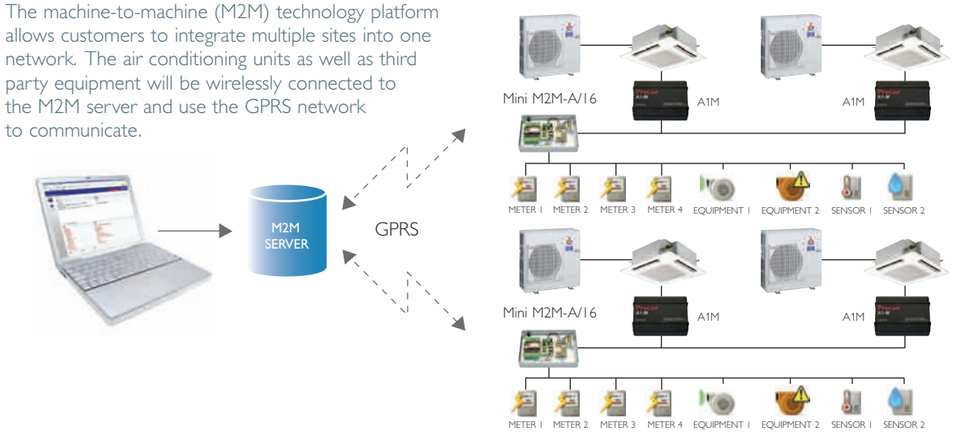
DEMONSTRATION

Visit **m2m.mitsubishielectric.co.uk/demo** to use the live demonstration space (login: demo / password: demo)

M2M - Machine 2 Machine Splits Interface

Procon™ Mini M2M-A/16

To offer remote management of its air conditioning units to companies with large numbers of dispersed offices, Mitsubishi Electric has adopted the M2M platform. The machine-to-machine (M2M) technology platform allows customers to integrate multiple sites into one network. The air conditioning units as well as third party equipment will be wirelessly connected to the M2M server and use the GPRS network to communicate.



Technical Information

M2M SPLITS INTERFACE

FUNCTION	DESCRIPTION
MAX No. OF INPUTS	8 (4 to 20mA, 0 to 10VDC, 10k☐ resistor, digital)
MAX No. OF OUTPUTS	4 (pulse with modulation)
MAX No. OF INDOOR UNITS	16
SIM CARD	Vodafone Sim Card supplied with one year contract
M2M SERVER HOSTING	First year free of charge
POWER SUPPLY	240VAC 2A
COMPATIBILITY	Mr Slim and M Series via Procon A1M
DIMENSIONS - mm (WxDxH)	255x60x180

M2M SPLITS INTERFACE - OPERATIONAL INFORMATION

FUNCTION	NETWORK VARIABLE	NOTES
Control		
	On/Off	Run/Stop
	Mode Operation	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Cooling 19-30˚C Heating 17-28˚C Auto 19-28˚C
	Fan Speed Control	Lo-Mi1-Mi2-Hi
	Time Zone	Weekly scheduling available
Monitor		
	On/Off	Run/Stop
	Mode Operation	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Cooling 19-30˚C Heating 17-28˚C Auto 19-28˚C
	Fan Speed Control	Lo-Mi1-Mi2-Hi
	Fault Code	4 Character code – Indicates all unit alarms
	Room Temperature	-
	Time Zone	Weekly scheduling available

DEMONSTRATION

Visit **m2m.mitsubishielectric.co.uk/demo** to use the live demonstration space (login: demo / password: demo)

M2M - Machine 2 Machine Splits Interface

Procon™ Micro M2M-SMS-A/08

The Micro M2M can monitor and control up to 8 splits systems. The Micro M2M cannot be connected to the M2M server but can be monitored and controlled using text messages (SMS).

Technical Information

M2M SPLITS INTERFACE

FUNCTION	DESCRIPTION
MAX No. OF INDOOR UNITS	8
POWER SUPPLY	10 to 28VDC 2.5A
COMPATIBILITY	Mr Slim and M Series via Procon A1M
DIMENSIONS - mm (WxDxH)	70x51x105

M2M SPLITS INTERFACE - OPERATIONAL INFORMATION

FUNCTION	NETWORK VARIABLE	NOTES
Control		
	On/Off	Run/Stop
	Mode Operation	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Cooling 19-30˚C Heating 17-28˚C Auto 19-28˚C
	Fan Speed Control	Lo-Mi1-Mi2-Hi
Monitor		
	On/Off	Run/Stop
	Mode Operation	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	Cooling 19-30˚C Heating 17-28˚C Auto 19-28˚C
	Fan Speed Control	Lo-Mi1-Mi2-Hi
	Fault Code	4 Character code – Indicates all unit alarms

TEXT MESSAGE EXAMPLES

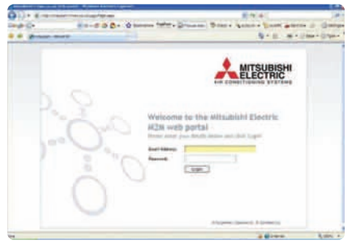
REGISTER (FROM MOBILE PHONE)	To register the Micro M2M to your mobile phone, just text the PIN and "ADD". Up to 8 numbers can be registered. For example: **"1234 ADD" 1234 being the last 4 digits of the serial number**
MONITOR	To monitor the units, just text "STATUS" to the unit and the Micro M2M will reply with, for example: **STATUS UNIT1: OK A1M COMMS: OK DRIVE:OFF ROOM TEMP:22 TEMP SETPOINT:20 MODE:AUTO FAN:HIGH**
CONTROL	To switch the unit to heat mode, just text "SET" "unit name" and "HEAT" for example: **"SET UNIT1 HEAT"**
FAULTS	If the unit goes into fault, the Micro M2M will send a detailed text message, for example: **STATUS UNIT1: FAULT A1M COMMS: FAULT CALL 0870 3000300 FOR ASSISTANCE**

M2M-Machine 2 Machine Web Screenshots

MEUK Website

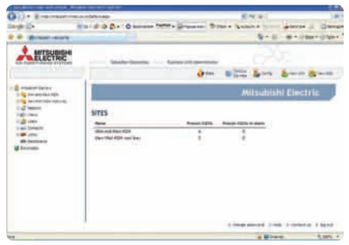
M2M is accessible using MEUK website.

Login



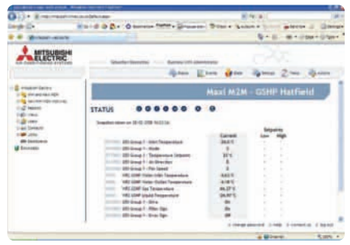
A username and password is required to monitor and control sites.

Monitor Active Alarms and Sites



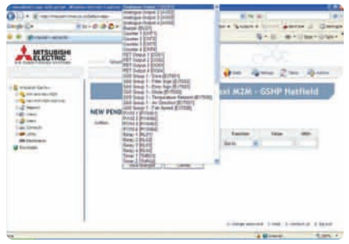
All sites are listed with active alarm sites.

Status



A site can be selected to monitor each system.

Set Parameters

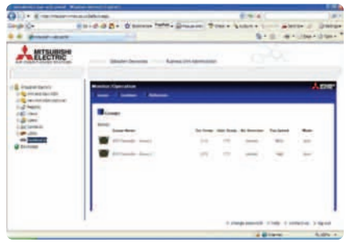


Indoor unit and third party equipment can be controlled from the Website.

Reports

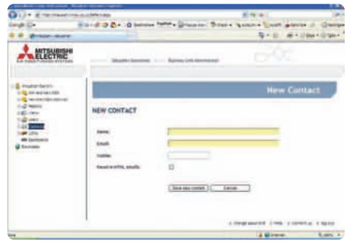
Reports can be generated for analysis.

Dashboard



AG150/GB50 web pages are available for the air conditioning units

Administration



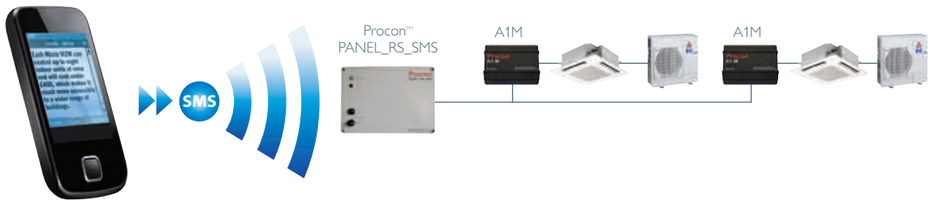
Using the administration level, the phone numbers and email of each duty engineer may be set and activated.

Technical Information

Run Standby Panel

Procon™ PANEL_RS_SMS

The panel PANEL_RS_SMS replaces the previous run standby panels. The new panel is smaller and uses Micro M2M technology. The panel can control up to 8 indoor units and will send a text message under fault condition.
The PANEL_RS_SMS does not need the SIM card to run.



Technical Information

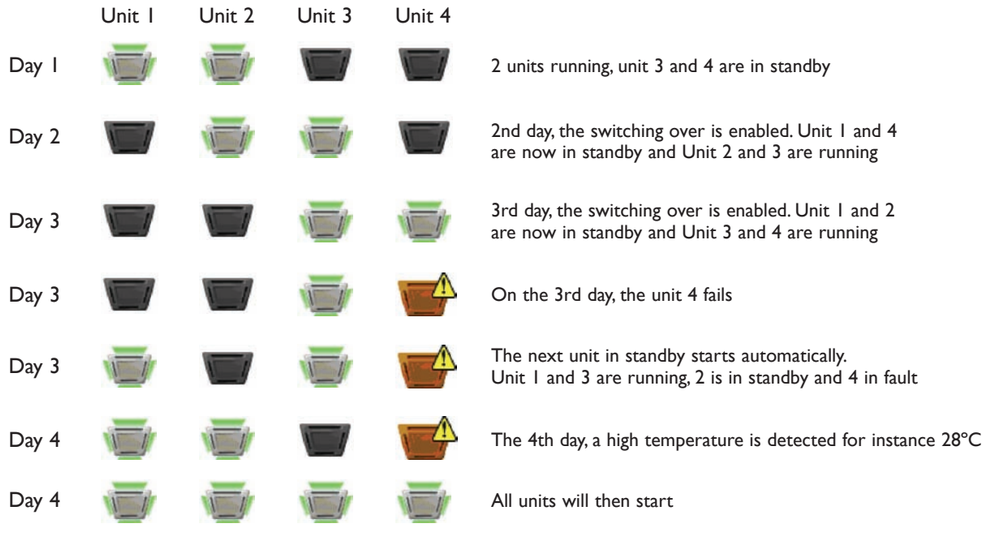
PROCON™ PANEL_RS_SMS

FUNCTION	DESCRIPTION
MAX No. OF INDOOR UNITS	8
FEATURES	Buzzer / Fault LED / Auto/Manual override switch / Relay for fault output
POWER SUPPLY	240VAC 2A
COMPATIBILITY	Mr Slim and M Series via Procon A1M
DIMENSIONS - mm (WxDxH)	253x90x180

TEXT MESSAGE EXAMPLES

REGISTER (FROM MOBILE PHONE)	To register the Micro M2M to your mobile phone, just text the PIN and "ADD". Up to 8 numbers can be registered. For example: **"1234 ADD" 1234 being the last 4 digits of the serial number**
SET UP USING A TEXT	Enter the number of units running, the number of days to switch over and the high temperature alarm, for example: **"BACKUP ON, 3, 7, 27"** ("ON" to activate, "3" for 3 units running, "7" to switch over every 7 days and "27" for the high temperature alarm [all the units will be switch ON])

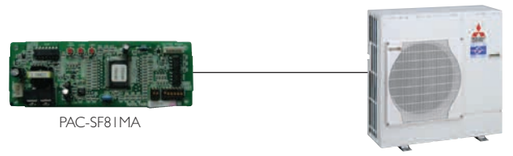
Example: "BACKUP ON, 2, 1, 27" = 2 units running, change daily, high temperature 27°C


Unit 1
Unit 2
Unit 3
Unit 4
Day 1
2 units running, unit 3 and 4 are in standby
Day 2
2nd day, the switching over is enabled. Unit 1 and 4 are now in standby and Unit 2 and 3 are running
Day 3
3rd day, the switching over is enabled. Unit 1 and 2 are now in standby and Unit 3 and 4 are running
Day 3
On the 3rd day, the unit 4 fails
Day 3
The next unit in standby starts automatically. Unit 1 and 3 are running, 2 is in standby and 4 in fault
Day 4
The 4th day, a high temperature is detected for instance 28°C
Day 4
All units will then start

NOTE: The PANEL_RS_SMS is pre-configured as a PANEL_RS1 and can be re-configured as PANEL_RS2 or PANEL_RS3 using a jumper.

Split-System A2M Interfaces

The City Multi systems use advanced communication protocol called M-NET. The Split-Systems can be interfaced to M-NET, allowing compatibility with the main centralised controller (AG150, GB50, TG2000). An A2M adapter would be required per outdoor unit for Mr Slim and per indoor unit for Mr Slim S Series or M Series indoor units.


PAC-SF81MA

Technical Information

SPLIT-SYSTEM A2M INTERFACES

FUNCTION	PAC-SF81MA	MAC-399IF
COMPATIBILITY	Mr Slim Outdoor Unit	Mr Slim S Series / M Series Indoor Unit
CONNECTION TO	Outdoor Unit	Indoor Unit
MNET SETTINGS	Rotary Switches	Dip Switches
DIMENSIONS - mm (WxDxH)	130x15x90	160x55x70